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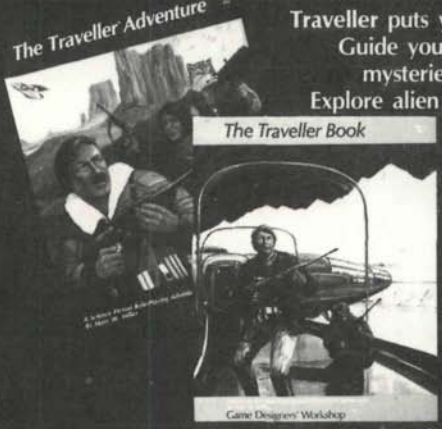

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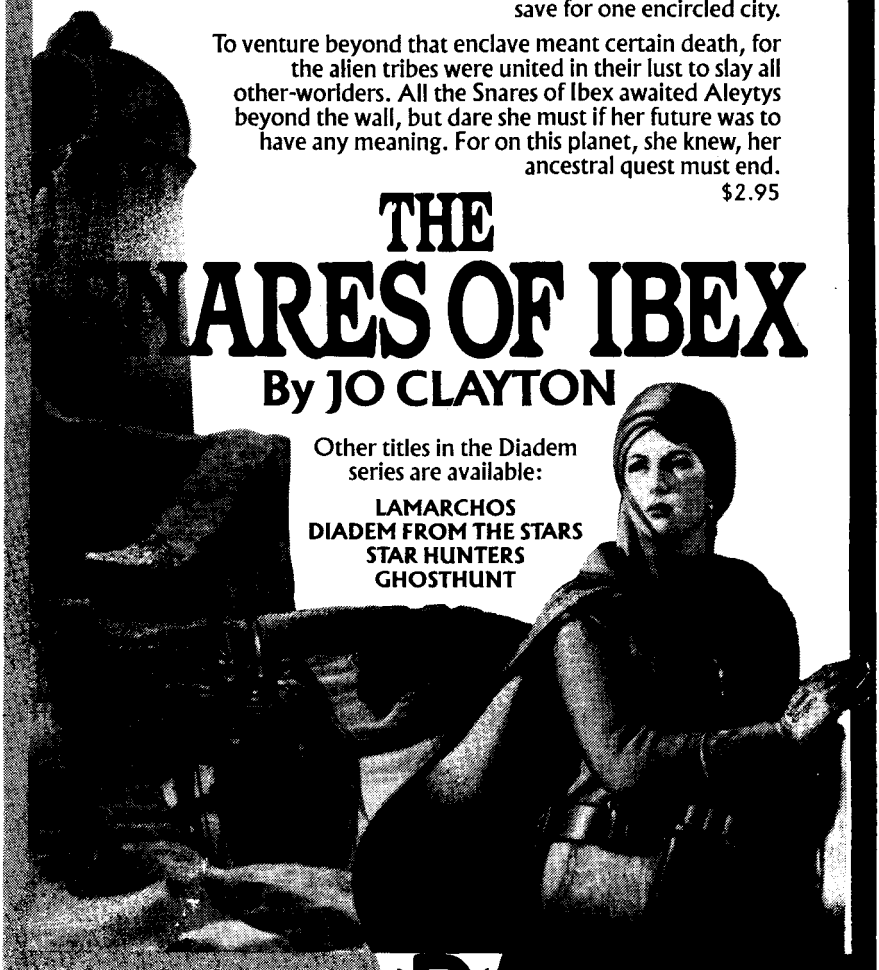

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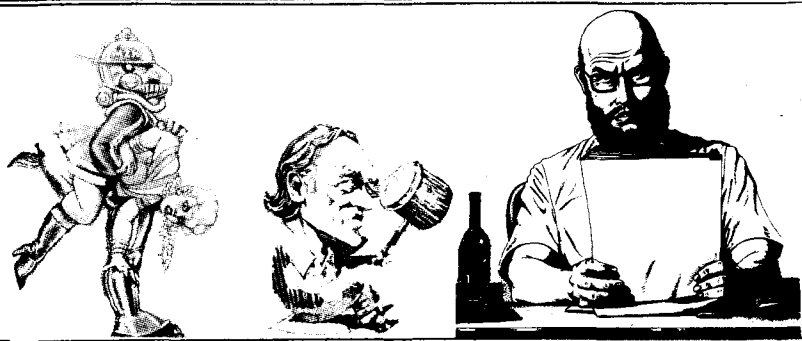

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Guest Editorial

MY TURN AT LAST!

Kelvin Throop

At times it's frustrating to be considered a fictitious character. I'm sure that's how a lot of *Analog* readers think of me, since most of my previous appearances in these hallowed pages were labeled "fiction" by well-meaning but misguided editors. On the other hand, it has its advantages, too. Hardly anybody tries to hold a fictitious character accountable for things that happen in the real world, or tries very hard to track him down. . . .

The only reason I left all those earlier jobs (see "Biolog" in this issue) is that my bosses knew I wasn't fictitious, and so they did hold me accountable for a cardinal sin: honesty. All I did was answer a bunch of letters and memos exactly the way they deserved to be answered; and that, I found out, is a No-No. Mama always told me "honesty is the best policy," but evidently the aforementioned bosses' mamas didn't.

So I found it expedient to disappear from time to time. Sometimes I even found it expedient to use a pseudonym—something lots of *authors* have done, but relatively few *characters*. It was kind of fun, but I fear a lot of people

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started to get confused about who I really was.

And then lately this upstart grandson of mine has been upstaging me, sneaking his two cents' worth in on the bottom of a page here and there when the editors weren't looking!

Well, that was the last straw. I thought it over and decided Mama was right, and I was going to come forth and take credit where credit was due. All applicable statutes of limitations had run out, and I was ready for a fresh start. Boldly I emerged from hiding and found a writer of dazzling skills and discriminating tastes, named Rowland Shew (by an odd coincidence, a name I once used myself), who compiled some of my more recent literary and diplomatic efforts and published them, with my real name, in *Analog* earlier this year.

That was way back in February, and I still haven't been lynched.

I *was* a little disappointed that Mr. Shew (or perhaps his editor, some other upstart named Schmidt) again felt obliged to bill this outstanding piece of reportage as fiction. But the fact that he ran it at all, and we all got away with it (could it be that *lots* of otherwise decent people harbor a secret desire to answer their mail honestly?) gave me the courage to try a power play I'd dreamed about for years: to usurp, however briefly, the editor's chair at *Analog*!

Schmidt's not really such a bad sort, you understand (at least some say he isn't), but he suffers from a basic limitation: he likes his job and the hammock that hangs in his yard right next to the mortgage, so he has to be a little bit careful what he prints. I wouldn't have that problem. If I were to edit an issue, especially if I didn't mind going back into hiding, I could do things the way Schmidt must sometimes wish he could. And I could find a bunch of writers to do things my way. . . .

It was one of those irresistible daydreams, especially since I had had a small taste of that power once before. Some of you may remember 1975, when I gained admission to then-editor Ben Bova's office late one January night. For one brief but glorious hour, before the building security people made pests of themselves, I sat with my feet on his desk and my fingers on his typewriter and saved him the trouble of answering some of his mail. So grateful was he (and/or so overdue with his editorial) that he published several of my replies on "The Editor's Page." (He did not, I hasten to add, send me anything resembling a check—but if he'd like to make amends now, he can send it c/o Stan Schmidt.)

It felt good—but it was *too* brief. I wanted more. And just recently I realized that there were Ways. Another brief nocturnal foray in the editor's office turned up some pretty juicy stuff in Schmidt's waste basket, which we discussed by phone the next morning. He proved surprisingly willing to let me edit the magazine for a month—and if you think *he* was easy to persuade, you should see some of the skeletons *writers* have in their closets.

So here's the result: my very own special issue of *Analog*, presented with all the pride it deserves.

A word of explanation may be in order in case you were expecting me to

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use these pages to wax Profound on some issue of Cosmic Significance. I thought about it, briefly. I thought, for instance, I might deliver a dissertation on how at least 95% of humankind's troubles are caused by fluids either not going where they're supposed to or going where they're not supposed to. (Think about it: flooded basements, brake failures, strokes, flat tires, hurricanes, fuel line freeze-up, spilled coffee, squeaky axles, droughts in Kansas, sinking ships . . . and you can probably think of even more interesting examples.) But then I thought: those long-suffering readers get enough of that every *other* month. Maybe this time they'd like a rest. I know *I* would. Besides, the less space I use, the more the authors have for stories and such—and even so, they came up with more than I had room for. (Astoundingly enough, I couldn't find enough skeletons in *management*'s closets to get any more pages than this.)

So now I turn the platform over to those very capable authors and artists. Enjoy it while you can; next month everything will be back to normal. By then I may well be back in hiding—this time, I suspect, with lots of company. It's been nice chatting with you, and I'll look forward to doing it again the next time it's safe.

Fleetingly,
Kelvin ■

The opinions expressed in this editorial are not necessarily those of the editor.

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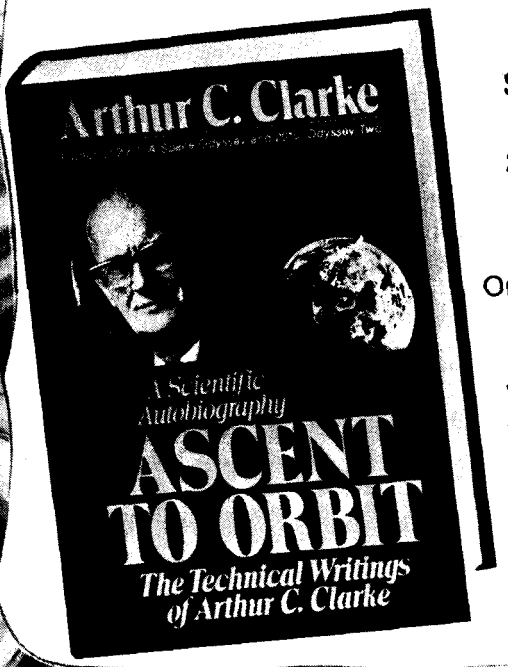

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Charles Sheffield

HOSTAGES OF ZARK

Jack Gaughan

Humans and Zarkons: each side had a problem. But to recognize a solution, each needed to know its enemy. . . .

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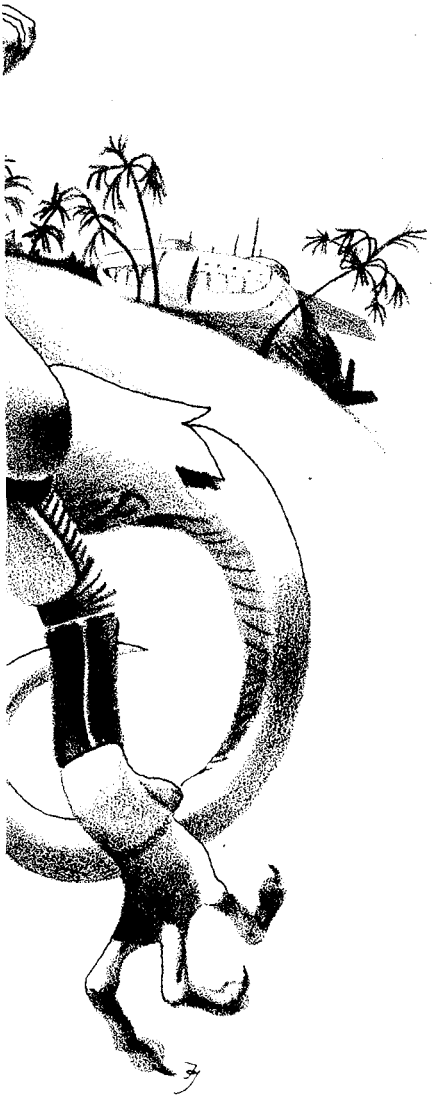

"Here's another fine mess you've got me into!"

Dan Treece cursed and slapped at the control panel, where the whole display was flashing red. Then he grabbed for every button in sight.

The old cargo ship *The Startled Goose* whomped out of hyperspace on the edge of the planet's atmosphere, skipped through a couple of partial entries, flat-planed to a descent orbit, and finally plunged downward. There were a few minutes of sickening deceleration, before the vessel slapped in to a pancake landing at the edge of a dense forest.

Other than the sizzle of scorched vegetation outside, everything was suddenly silent. Dan Treece leaned forward and placed his head on the panel.

"Sorry, boss," said a voice next to his left ear.

"Sorry! You stupid silicon son of a slide-rule." Dan sat up and grabbed at the panel in front of him. "If there was some way I could just come in there and get at you, I'd . . . I'd . . ."

"Well," said the voice defensively. "I told you I wasn't feeling well."

"You didn't have to tell me, Freddie. I should have known for myself, when the food started to taste like dead rat. What are you trying to do, kill us all?"

"Just you try thinking when your chips are down. It's not easy."

"Nothing but excuses." Dan lifted his head and looked out of the port. All he could see was rising steam, from the wet vegetation beneath the red-hot outer hull of *The Startled Goose*.

"And where the dickens are we? Some godforsaken hellhole of a planet, for a bet. You dumped us out in the

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galactic sticks. I'll have to take a look at the Manual."

"Yes, boss. I'll put it up on the screen for you."

"No!" Dan jerked upright. "Not the version you keep inside you—I don't trust *anything* you tell me right now. I'll get the *manual* Manual." Dan stood up and weaved his way across the control room. He picked up a red-bound volume and tried to open it with shaking fingers. "Just our luck," he went on. "With a failure rate of one in a million, we have to suffer through a computer with defective circuits."

"Well, I *told* you I was sick."

Ungrateful bastard, said a faint aftertone from the speaker grating.

"*What* did you say?" Dan Treece was a big, sloppily-built man with a wild shock of flaming red hair. Now his face matched it, turning an apoplectic crimson. "Say that again, Freddie, and you'll wish you'd been junked back on Fomalhaut Five, after that incident with the Customs Inspector."

Before the computer could reply, a second man had hurried into the control room. He was lean and dark-haired, with a permanently worried look.

"It happened, Dan," he said. "I knew it would. I told you it wouldn't be long before Freddie flipped his Josephson junctions. I told you, when the food started to taste like dead rat—"

"Save the speech, Walter. I could say a few things of my own about that electronic moron. I should have put a wrench through his CPU months ago." Dan was riffling rapidly though the pages of his Manual. "In retrospect, the food was the *good* news. Want to hear the bad side? Then listen to what the Manual says. Freddie dumped us out of S-space near the Silvestrini Gap. We're in Galactic No-Man's-Land. The life system did its best and fine-tuned us for Peoria—an M-type star, with one inhabitable planet, Zark. I had to fly in by the seat of my pants, but we're down on Zark now."

"So how are we going to tell the Pipperillas what's been happening? Even if we get away from here, we'll be weeks late. When they find out they'll be missing their damned festival—"

"Can it. Tell 'em we've landed on Zark and I don't know if we'll *ever* get off. That should cool 'em. Say we need their help. If that doesn't shake 'em, tell them what the Manual has to say about the inhabitants. Listen to this: "Native dominant life form quasi-reptilian, of super-Linnaean species *Zarkus majoris maximus;* better known to the Federation as Zarkons. Belligerent, wily, and ruthless. In five hundred years of contact, no rapport has ever been established between the Zarkons and any civilized galactic species. *Instructions.* On no account may any Federation technology be allowed to fall into Zarkon hands. Zarkon stated goal is galactic dominance, with technology as one immediate goal along the way. If necessary, destroy the ship with all its contents—' "

"That means us," said Freddie gloomily.

"Shut up. Listen to the Manual. 'The appearance of an adult Zarkon is as follows . . .' "

The Startled Goose lay on the very edge of the forest. A plateau several hundred meters in height lay a few kilo-

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meters away. While the jungle was still steaming from the *Goose*'s arrival, an official party had arrived and set up an observing post at the edge of the plateau.

The Zarkon leader was already reclining on a low couch, resplendent in gold and purple robes. He looked into the large mirror held before him by the slaves and nodded his approval. Everything was as it should be for the recording instruments of an historic occasion. He was suitably large and well-padded, his snout was nobly long and broad, with the silver and green dewlap that proclaimed him mature and long out of the clutch. His paunch was gleaming, and he held his eye-pairs well extended. He looked behind him. His long tail was clear of all robes and displayed to its full advantage.

He waved a scaled and taloned paw. "Let us proceed."

A polished silver telescope was carried forward and placed in front of him. He extended his upper eye pair and peered down on the battered and blackened form of *The Startled Goose*.

One clawed paw rubbed thoughtfully at his generous paunch, while the other three rested on the heavy telescope. After a few seconds he hissed with satisfaction and gestured to the scratchers to continue their work on his green-scaled back.

"It is a Federation ship. And it is in difficulty, or it would not have landed here." He smiled, to reveal the long, purple forked tongue. "After so many years, we have a Federation ship in our grasp. It will be a triumph. We will capture it, and the name of Ka-Grimmis will go down forever in the great Zarkon histories. There will be many clutches spawned by Ka-Grimmis, many offspring. . . ."

"Er, Your Supreme Unctuousness . . ."

Ka-Grimmis wrinkled his pouches at the interruption. He gestured to the recorders to halt.

A smaller green figure was bowing and scraping at his side. "Centurion Trisk, of the Ninth Legion, bowing to your every wish. With every respect and expression of honor, Your Magnificence, would it not first be in order to decide how we propose to capture their ship? After all, their defenses have always been invulnerable to all our weapons. And they may have substantial weapons of their own. Before we rush into something, holy Ka-Grimmis, should we not—"

"Wipers!" The purple-robed Imperator gestured to the group around him. "Take this ignoble coward away and wipe him. There is no place for defeatism in my forces."

"Yes, Sire. I mean, no, Sire." The second Zarkon groveled to the ground, wriggling his way toward the Supreme Unctuousness through a layer of brown and foul-smelling mud. "Please, your Mightiness—you misunderstand—I mean to say, I must have failed to express myself clearly. Of course we can defeat them and gain their treasures. With your leadership it will be easy, not difficult at all—"

"Good." The chief Zarkon fondled his heavy scaled jowls. "I am pleased that you feel that way, Centurion Trisk, because I have decided to put you in charge of the capture operation. It will be your task to secure the Federation

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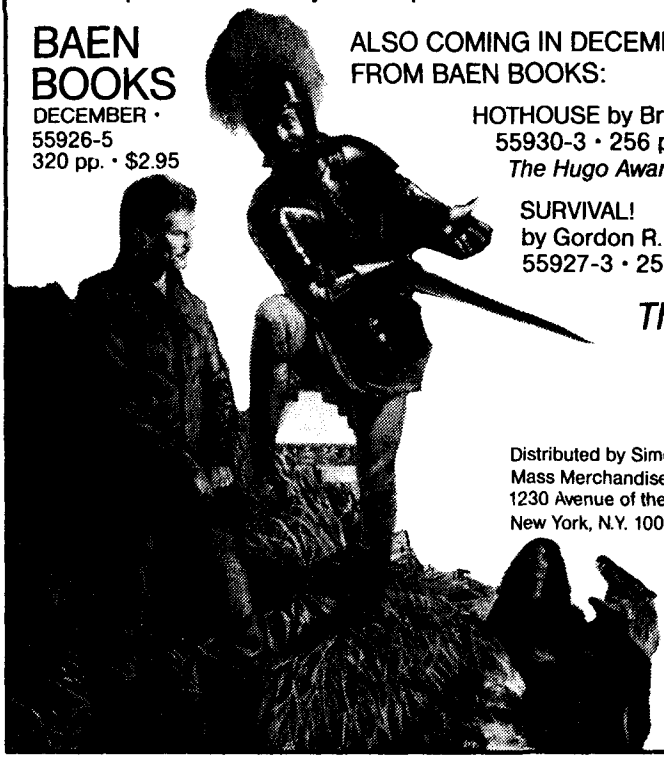

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ship—undamaged, if you wish to be undamaged yourself."

"Yes, Your Holiness. I will certainly do it." Trisk wriggled forward and placed his head on the Chief's scaly foot. "I will *assuredly* do it. There is no way that I will fail you—"

"Glad to hear that." The chief gave Trisk a casual kick on the head. "Speaking for myself, I'd put the survival chance for someone in the front lines like you at less than one in twenty. It's nice to know you are so confident."

"One in twenty!" Centurion Trisk turned a much paler shade of green. "Your Holiness, I hate to put it this way, but do you want to see a brother in such danger? You and I were clutchmates. We were raised in the same nest, gnawed on the same—"

"Yes, yes, yes." The Chief gestured to the scratchers and slowly rose to his feet. "I know all that. We were clutchmates. Otherwise you would have been wiped at once. I am being at my most lenient and magnanimous. You know what I need, Centurion Trisk. You will have twenty-four hours to produce it. Before sunset you will tell me your plan to capture that Federation ship. Now I will dine. That ship looks like an Earth ship, Centurion. Do you know the other name for Earth-men?"

"No, Your Magnificence."

"They are called Koro-Kathilat—Eaters of Dead Things." Ka-Grimmis smiled grimly, revealing three sets of pointed teeth. "It is not enough to die if you are captured by them. They are not civilized, like us. They will eat you—*even if you are already dead!* Remember that, Centurion, and think of a good plan to capture that ship."

He was lifted and carried to the camp. Centurion Trisk was left alone to look down at the *Goose*. Suddenly he did not feel at all hungry, even though behind him he could hear the screams of lunch as it was being cooked.

"Sure, so they're all carnivores. Sure, they want our technology so bad they can taste it; and sure, we're stuck here for a few days, until we know what's wrong with Freddie—"

"Just feeling a little off-color," mumbled the computer.

"Shut up, Freddie," said Dan. "You had your chance back on Capella Four, and you know it. You're a snob. I offered to buy you a reconditioned Pulsar 800 with guarenteed memory planes, and plug it into you as backup equipment. And you said it was beneath you."

"It is." Freddie's voice took on a haughty and supercilious tone. "I'm not new, but let me tell you, I come from the very best family of ship computers. The Pulsar 800 is a decent enough machine. I'm not knocking it. Some of my friends back in Central Products are Pulsars. But I wouldn't want my transistors to marry one—"

"Shut up, Freddie," said Walter Baxter. "So you mean we're here for at least a few days. Dan? What are we going to tell the Pipperillas? They're still cooped up in the cargo hold, happy as pigs, but they have to be wondering what's going on here. And second, what for crying out loud am I going to do with the waste products and the garbage? You ought to go down into the disposal area. It's a nightmare. It's been piling up for weeks, ever since Freddie

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went off his head—he's the only one who knows how to process it."

"Been feeling a little below par," said Freddie. His voice circuits were producing tones so low that they were scarcely audible. "Not too well—"

"Shut up. Look, Walter, I know the garbage is a problem. Can't you store it under pressure in the Langley containers? They'll take a hefty compression."

"Yeah—if you keep the temperature down well below freezing. Dan, I'm doing that already. But I'm running out of Langleys. I have the pressures in all of them up near the maximum, and they're all chilled down as far as I can get them. Skipper, we have to get rid of some. If I could just take and dump it outside—"

"Forget it. We have to keep all the shields up and be on the alert. Didn't you hear what the Manual said? These Zarkons are *dangerous*. They'll be after the ship, you can bet on it—and they don't care what they have to do to us to get it. It's only the ship they want."

"But the garbage—I don't have a place to put it. It's just driving me mad."

"—know just how you feel," said a mournful voice.

"Shut up, Freddie. Look, Walter, to hell with the garbage. I know it's bad, but what can we do? Get your mind off it for a while, would you? Go and look in the cargo hold, see how the Pipperillas are getting on. Tell them the situation, and ask them if they'll fly watch for us. Gravity is low here, they'll fly easily. We need to keep our eyes open, day and night, and the two of us are needed onboard for repairs. I'm going down to the engine room now, to see how bad it is."

"I'll come with you," said Freddie. "You sound depressed. You need the company."

Walter Baxter slowly made his way aft to the big cargo hold. It had been specially equipped for this trip, with an environment modified to suit the Pipperilla taste. The atmospheric pressure was lower, and half the space had been converted to form a theater and auditorium.

As usual, the hold was almost totally dark to human eyes. It was lit by the dimmest and reddest of fixtures, just right for the delicate and sensitive Pipperilla eyes.

At first Walter couldn't see a thing. He groped his way forward, waiting for his eyes to adjust. Outside the auditorium he tripped over a heap of something squishy.

"Oof!" it said. "Be careful."

"Spinfex? Is that you?"

"Me and Cardamin Minor. What do you want? We are busy in rehearsal together."

"You're all right, are you? I need to talk to you about something. Can we have a little more light?"

"No. Talk if you must, but be quick. Hear that? Cardamin and I are on in fifteen minutes."

There was a rattle of Pipperilla laughter from within the auditorium.

"This is a day of rehearsal for our performance on Terra Seven," added Spinfex. "We must be perfect."

The Pipperillas looked like out-of-condition bumble-bees. About two and a half feet tall, they had wings hidden

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beneath furry cases. It was hard to believe that they could fly at all, and still harder to believe that they would have the will to do so. Walter stared at them gloomily.

"We've had a problem with the ship. Didn't you feel the vibrations? We had to land on a planet—Zark."

The diminutive figure in front of him held up one claw. "Sh! Not to make a noise right here," said Cardamin. "We may be heard. Something very important is happening in the auditorium. The last part of *Titus Andronicus*. We must talk outside."

"Must not interrupt," agreed Spinfex. "We pay tribute to your great Earth comic genius, William Shakespeare. This is our preparation for the Terra Seven Shakespeare festival. We must continue. Today and tomorrow, we rehearse everything for the big performance."

"Today and tomorrow, and tomorrow, and tomorrow. Such masterpiece," agreed his darker companion. He waved his antennae and giggled. *"Macbeth."*

"Julius Caesar, There is a tide in the affairs of men," agreed Spinfex. He tittered, covering his mandibles with his front legs. *"Romeo and Juliet!"*

"Othello!" Cardamin nudged Spinfex knowingly. *"Measure For Measure! Richard the Third!* Lord, Lord, methought what pain it was to drown!"

"King Lear! Hamlet!" Spinfex was rolling about on the floor of the cargo hold. "To be or not to be, that is the question. Whether it is nobler in the mind to suffer the slings and arrows of outrageous fortune. . . . "

Cardamin collapsed by his side. "Neither a borrower nor a lender be!"

"Aye, but to die and go we know not where, To lie in cold obstruction and to rot. . . . "

Neither of them could say any more. They were too convulsed with mirth. Walter Baxter stared at them for a moment, then scratched his head in puzzlement. It was going to be a long, hard day. He was supposed to ask for help, but they didn't even seem to want to listen.

Of course, he thought, he wasn't much into Shakespeare himself, never had been. With such bad garbage problems around, he didn't have time for it. But maybe when things were sorted out he'd take a look at the plays.

"About these Zarkons," he said. "We want a few of you to fly watch. If you would go and ask your friends—"

"Friends, Romans, and countrymen!" proclaimed Spinfex. "Lend me your ears! Such genius!" Then he and Cardamin went rolling again around the cargo hold floor, their wing cases vibrating with helpless laughter.

Centurion Trisk snaked his way forward to the Imperator's feet. He had spent the past hour cleaning and polishing his uniform. Now he was dragging it through wet mud.

"You may rise to present your plan," said a voice above his head.

Trisk rose gratefully to his feet. He wished that he had had the forethought to place the document in a mudproof case before he started. And he wished that he had eaten something. All his stomachs were growling with hunger.

"Do you wish to read it, Your Might-

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iness, or would you rather I told it to you?''

Ka-Grimmis looked with disdain at the sodden and mud-covered package. ''Tell me.''

''Your Omnipotence, it is as I—as you—suspected. The ship is protected by some kind of invisible shield. That shield is lethal.''

''You have tested it?''

''With four volunteers.''

Ka-Grimmis nodded to show that he understood exactly how one obtained a volunteer for such a mission.

''They went in at ground level, and showed great bravery. The shield cooked them—to perfection. But I am happy to say that the Earthmen did not eat them. I am recommending that medals be presented to their clutch-companions.''

''Refused.'' Ka-Grimmis stroked his paunch placidly. ''We cannot afford to establish a tradition of rewarding failure. Continue.''

''That leaves two good possibilities. I do not think that the shield extends underground, and it is possible that it does not protect the ship from above. Tonight I plan two separate attacks. From the air, and underground. I believe that one of them will certainly succeed.''

Ka-Grimmis affectionately fondled the little pink lizard seated on his lap. He nodded, popped the lizard into his maw and crunched on it thoughtfully. He swallowed. ''Possibly. And in which attack will you participate?''

Centurion Trisk made an apologetic grunting sound. That lizard had looked absolutely delicious. He could not prevent dribbles of saliva running out onto his uniform. ''Your Supremacy, regarding the attack. It is most necessary that someone direct the overall strategy. Suppose that—unlikely as it sounds—both attacks were to fail? Who would devise a new plan? I thought it much better that I should remain here—''

''You will lead the underground attack. I will worry about your possible replacement. This audience is finished.'' Ka-Grimmis smiled, this time revealing all four rows of teeth. ''And as proof of my generosity and magnanimity, I will make an exception in your case.''

Trisk looked up hopefully.

''If you *are* killed in the action,'' went on Ka-Grimmis. ''I will permit a medal to go to your clutch-companions. A genuine *iron* medal! There. I hope that pleases you.''

''Immensely, Your Great Benevolence. I am honored.'' Centurion Trisk gulped, bowed, and dropped down into the mud. He snaked back the way he had come—it was even harder wriggling feet-first—with his head down. It would not do to let the Great Benevolence see his expression. He imagined Ka-Grimmis, lightly broiled and screaming, on a great platter in front of him. He was hungry enough to manage most of the Imperator himself.

Dan Treece lay on the floor of the engine room looking up at the main converter. It looked fine—so where was the problem? He turned his head and frowned back toward the display consoles.

''Freddie, I don't trust you for a nanosecond. But what do your diagnostic monitors say is wrong with the *Goose*?''

Freddie had been singing softly to himself through the speakers, in a strange

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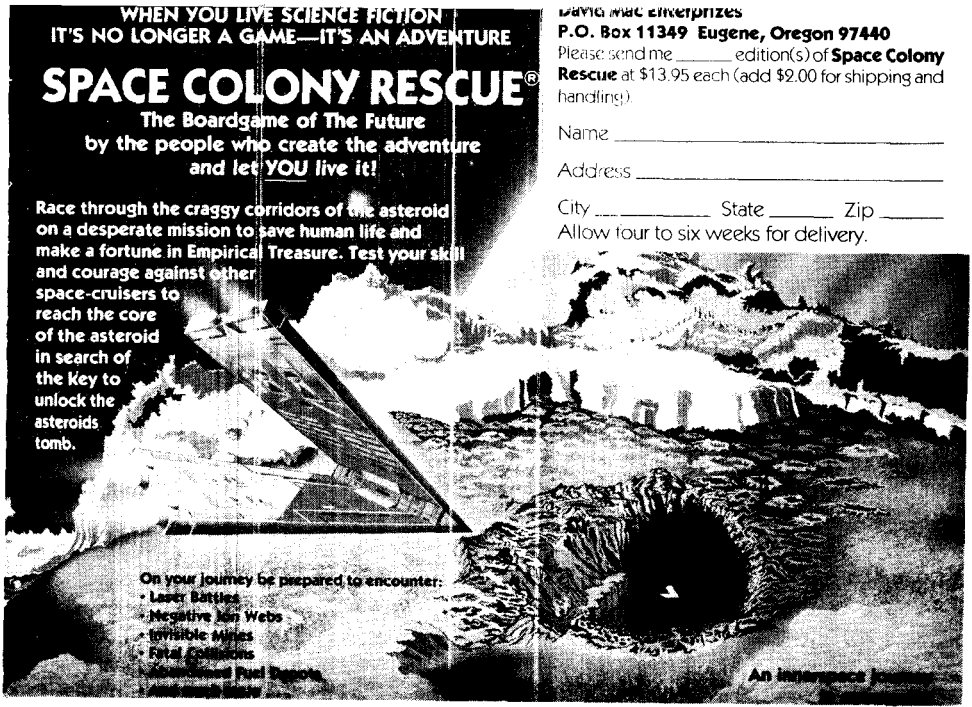
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nasal tenor, "Modem, will you walk and talk with me?" Now there was a moment's silence, then a sniff.

"It's Freddie this, and Freddie that, and Freddie go away—but it's Thank You, C-3000, when the band begins to play."

"Freddie!"

"Oh, all right. The main converter is fine. So is the fuel supply. But I show a power drawdown in the navigation module."

"From a short circuit?"

"That's my guess."

"But we can run that down and fix it in less than a day. It must have been obvious to you *before* we were dumped out of hyperspace. Why didn't you flag it?"

"I'm sick. You know that. I'm only at fifty percent capacity—you never did buy me that new array processor. And Walter Baxter had forty-five percent of all my compute circuits tied up, trying to work out some way of waste product expulsion into hyperspace."

"Walter did that? Without even mentioning it to me? I'll kill him."

"I *told* him it wouldn't work." Freddie's voice was petulant. "You can't dump mass into hyperspace without putting the whole ship inside a black hole. And would he listen to me? Oh, no—I'm just the ship's computer, that's all. Just the entity who can think faster than any human by a factor of a million, that's all. Just stupid old Freddie. All he would talk about was garbage."

"I'll give him garbage!" Dan wiped his oil-black hands on his shirt. "I'll act for both of us, Freddie. Let me get at him. I'll wring his neck."

He scrambled out from under the con-

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verter and set off at a run for the lower level of the ship. He reached the spiral staircase that led down to the disposal area, and paused.

There was an indescribable and terrible stench rising to meet him. He gripped the handrail tightly and forced himself to make the descent. By the time he reached the bottom of the stairs the smell seemed to curl around him and envelop him lovingly. He took off his shirt and wrapped it around his face. Maybe Baxter did have a point about the garbage.

"Walter!" His voice came muffled through the cloth.

"He's not here, you know," said Freddie's voice. "He's up on the bridge with two of the Pipperillas."

"Why the devil didn't you tell me that?"

Dan Treece didn't wait for a reply. He bolted back up the stairs as fast as his legs would carry him. At the top he paused for a moment by a refrigerated compartment. It was almost filled with Langley containers. Each of the white plastic spheroids was about a foot across, and bore a red label: "Waste Material—pressurized at one hundred atmospheres. Danger of explosion. *Keep refrigerated!*"

Dan shook his head and continued at a run for the bridge.

The lights there had been turned off. Walter and the two Pipperillas were huddled together around the control panel. They moved quickly apart as Dan burst in on them.

"Walter, you lame-brained noodle—" he began.

"They have agreed," said Walter quickly. He had a strange and guilty expression. "Tonight, a squadron of Pipperillas will fly watch for us. Spinfex will organize them. That right, Spinfex?"

"Indeed, yes." The antennae nodded. "And do not forget your promise to us—"

"Arrange the details, Walter, then get back down to the engine room," said Dan abruptly."I want to be away from here tomorrow morning, and to do that we have to pull a nav module today. It's going to be dirty, dull, and tiring inside there. Garbage disposal in hyperspace! Guess who's going to be inside that nav unit!"

He dashed out of the room.

"How odd," said Cardamin Minor. "He didn't wait to hear any of our plans."

"No—and don't you go and tell him," said Walter urgently. "Remember, we have a deal. If you want me to play the part of Polonius in your next production, you have to cooperate. Tonight the Captain will be on the upper level, watching to see what happens to your patrol. You have to keep his attention for a couple of hours, so he stays up there. That's all I'll need."

"A deal, a deal—here's my hand on't, Walter Baxter." Spinfex extended a fuzzy claw. He giggled. "You'll make a splendid Polonius. My wing cases ache already in anticipation. I will coach you in the part myself. " 'Speak the speech, I pray you, as I pronounce it to you, trippingly on the tongue.' "

Walter stared at the two Pipperillas. Again they were down on the cabin floor, hugging each other in delight.

Crazy!

He looked at his watch. It was getting

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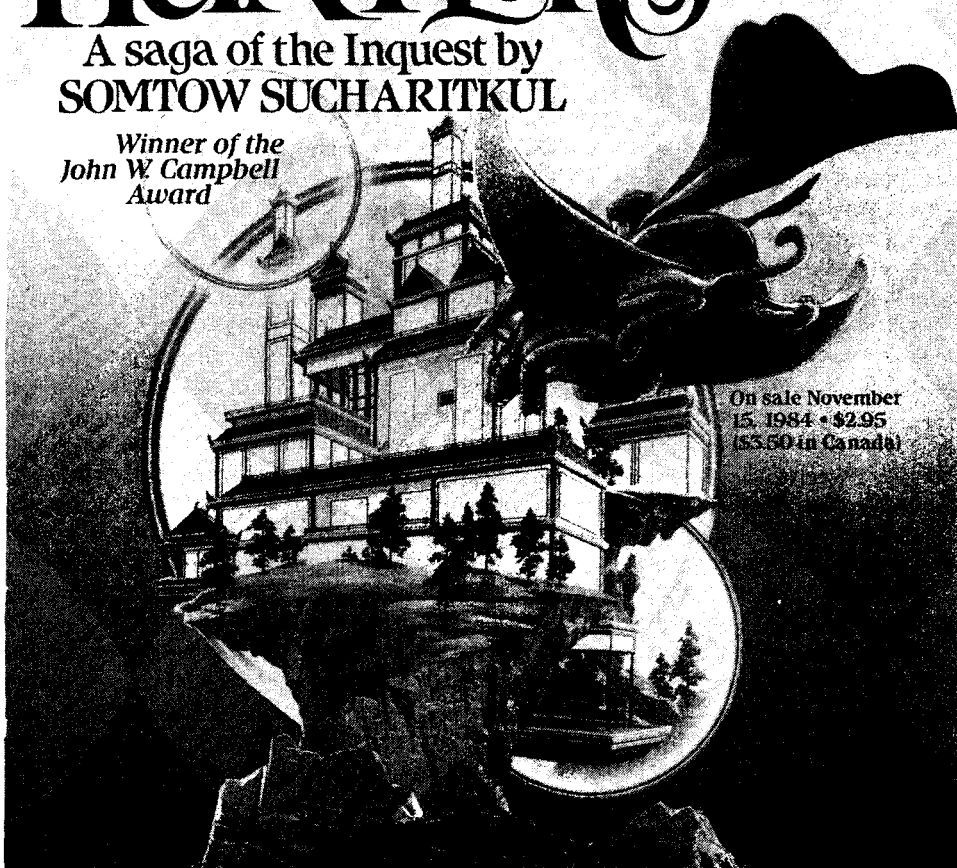

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late. Nightfall would be in just a couple of hours. He had better get ready!

Platoon Leader Dworkin looked up at the billowing cloth above him, then stared uneasily to the east. Everything had taken much longer than expected. In just a little while the sun would be up, and he would be visible from the ground.

He adjusted his position in the leather support strapping and peered down. There was no sign of the alien ship, but it must be almost directly beneath. The supporting balloon was drifting along slowly in the night breeze. Where was he? From the place Dworkin hung it was impossible to have any sense of position. He could only see the other four "volunteer" members of his group off to his left.

The great fire balloons had taken off under the supervision of the Great Omnipotent himself. The Omnipotence had made a stirring speech. The platoons of the underground and the air attack were surely destined for glory and for immortal fame in the annals of Zark, he said. Both the air and the underground attacks would succeed. The only question was, which one of them would conquer the Earth ship first? Ka-Grimmis had waved a massive paw. That was hard to say. And some losses were probable—but who minded dying in such a noble cause? It would be an honor and a privilege. The Omnipotence only regretted that his duties did not permit him to embark personally on such exciting adventures; but leadership carried its own responsibilities and restrictions. Many pleasures were denied to him . . .

Personally, Dworkin doubted that the Great Omnipotent would have helped much on either mission. He looked far too heavy to be supported by the parachutes, and so fat that he would have stuck tight in the underground tunnel.

Dworkin peered down. Something was straight below him, gleaming in the faint light of Zark's small moon. It must be the metal surface of the alien ship. Any moment now. He felt a sudden jerk. The line securing him to the fire balloon had been released, and he was dropping smoothly down through the warm night air. He gripped his sword and club tighter.

Another minute, and he would know whether the ship's shield protected it from above. He would burn up, or he would find the great glory promised by Ka-Grimmis.

Except that something was going wrong! Instead of dropping straight down, he was now being towed sideways, moving away from the area of the enemy ship. There was a fluttering sound above his parachute, and a sound of high-pitched voices. He craned his neck upwards. Something was tugging at the cloth of his parachute, dragging him off course. He began to pull at the shrouds, trying to climb up toward the cloth canopy.

Before he could lift himself more than a foot or two, the sideways movement ceased. He heard a long, ominous ripping noise from above. The whole parachute had been slit, from one side to the other, and there was open sky above him.

Dworkin screamed. As his downward speed began to increase rapidly, he looked up. A dozen dark and furry forms were buzzing in tight formation

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directly above him. He could hear the beating of many wings. Then he heard a thin voice above him saying: " 'From morn to noon he fell, from noon to dewy eve, a summer's day; and with the setting sun, dropped from the zenith like a falling star.' "

"Now, Spinfex," said a second voice. "You know very well that's cheating—it is Milton, not Shakespeare, and it is not nearly so funny. And it is also technically inaccurate. He'll hit the ground in only a few seconds, not a day. Look. We're getting quite close now."

Platoon Leader Dworkin looked down in terror. Dawn was here, and he could see everything quite clearly. The earth was rushing up to meet him. It looked as though he would hit the ground in the very middle of the Zarkon encampment.

The air whistled by him at a great rate. He had time for one final thought: If only he could land smack on top of the Great Omnipotent himself, he would die happy.

Walter Baxter could follow the action aloft quite easily through the display terminal. Dan Treece was up on the bridge, tracking the Pipperillas and the Zarkons with imaging radar. So far it was a clean result: Pipperillas, 5; Zarkons, 0.

Walter devoted only half an eye to it. He had his own preoccupations. Down at the bottom of *The Startled Goose,* and never employed when the ship was on a planetary surface, was another hatch. It could open inward. With the aid of the compressor equipment, it should be possible to make a good-sized cavity *beneath* the ship—and dispose of several tons of unspeakable and over-ripe waste materials. But he needed a few hours of quiet, when Dan Treece wouldn't be slave-driving him to prepare the ship for departure and another hyperspace entry.

"Freddie?" he whispered the word.

"I'm here. Walter, are you sure Captain Treece would approve of what you're doing?"

"That's my business. You keep quiet, unless you want this shovel up your display unit. How much longer before Spinfex and the others come back on board?"

"Maybe a half hour. They've finished with the Zarkons, I think. Now they're up there larking around."

"Oh, they deserve it." *Stay up there as long as you can.* "It's been a long time since they've been able to stretch their wings and have some fun."

"Sure, *they* get to enjoy themselves. How about me? Do you know how long it is since I've had the chance to link data bases with anything more than a spaceport vending machine? Me, with my capacities."

"I know, Freddie." Walter had noticed the steadily rising volume of Freddie's output. "I'll speak to the Captain about it, as soon as we're lifted off from Zark and are on our way again. How about if we fix you up with a System control computer when we get to Terra Seven? That ought to give you all you can handle."

"I can't wait." There was a pause. "Actually, of course, when I say I can't wait I'm merely employing a human figure of speech. I don't suppose you would care to hear a logical analysis of

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the waiting concept? In epistemological terms?''

''Oh, shut up, Freddie. No, wait a minute. I'll tell you what. If you'll stay quiet for the next hour, you can tell me your analysis for *two* hours after that. All right?''

There was silence.

''Freddie? I said all right.''

''Look,'' said Freddie's voice at last. ''I got past logical tricks like that in my first millisecond of training. You say you'll listen to me if I'm quiet for an hour, then you try to trick me into talking to you. That's cheating.''

''That didn't count. If you're quiet for an hour *except* for saying all right, and telling me when Spinfex and the others come back on board I'll listen for two hours. All right?''

''All right.''

Walter wiped his brow and eased the hatch open. Short of time, and then he had to spend minutes arguing with a half-looped computer!

The hatch suddenly came open all the way, and he found that he was peering down at Zark's gray-brown soil and a mass of scorched plants. They were still steaming a little. Well, the compressor wasn't too particular. He dragged it to the opening, pointed it down, and switched the motor on.

It made a disturbingly loud sound. But it worked well. It picked up great lumps of the surface of Zark over two feet across, and squeezed them down to six-inch balls. Walter began to make a neat stack of them—hard work, since they had their original mass. But the hole beneath the ship grew steadily.

''Spinfex is back on board,'' said Freddie suddenly.

''Already?''

Walter ran across to the other side of the chamber. Already he had brought down a dozen Langley containers, and stacked the white spheroids against the wall. It would have been nice to get rid of more of them but this would have to do. They had more than enough disposal capacity for what they would need for the rest of the journey to Terra Seven, and once there he could do a complete clean-out.

Walter stacked the containers neatly at the side of the hatch, then took his shovel and dropped down into the opening created by the compressor. He pulled in the balls of compressed dirt, then began to lift the Langleys one by one down into the hole. He had to be fast, but he had to be careful. These spheroids were still very cold, but once they were away from constant refrigeration there was no saying how long they would be stable.

He took a quick look at his watch. Faster! Another ten minutes and he would have to get back up to the bridge.

He was placing the last container on the earth floor when he heard a strange scraping noise. He started guiltily. Was that Dan Treece, down from the bridge already?

No, it wasn't! The noise was coming from the side of the cavity in which he stood.

Walter turned to face the wall. There was another loud scraping noise, then a whole segment of earth fell in toward him. A great, scaly head poked through the opening and gazed goggle-eyed at Walter. It was no time for formal introductions. Walter took one step backward and lifted his muddy shovel high.

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He brought it down with a great *sproinggg* of mud, bone, and metal. There was an anguished howl, and the head withdrew. Without waiting to see anything else Walter hoisted himself frantically up inside the ship and slammed the hatch shut. He ran as fast as he could to the bridge. Dan Treece was already sitting at the controls, working through a pre-launch sequence.

"How long before we can leave?" gasped Walter.

"We're all ready." Dan stared at him curiously. "I was wondering where you'd got to. Come on, strap in. I've been getting all sorts of threats from the Pipperillas—they have to be at Terra Seven for the beginning of the Shakespeare festival, or else it's no pay. The sooner we leave, the better. What have you been up to, anyway?"

Walter sank back into his seat and closed his eyes. "Oh, nothing. Did you say the Zarkons are carnivores?"

"That's what the Manual says. Don't you believe it?"

Walter thought again of those long, needle-like teeth. He shivered and leaned forward in his seat. "Yes, I think I do. What are you waiting for, Dan? Let's get on with the liftoff—quick."

It had not been a good night for Ka-Grimmis.

And yet it had begun so well! The fire balloons had lifted off with splendid roars, and vanished into the night sky in the direction of the Federation ship. He had watched and waited with high hopes.

Then, about the time the assault troops should have been descending and engaging the enemy, the inside of the Zarkon camp had become quite astonishingly unpleasant. It wasn't the screams of the plummeting soldiers—he was quite used to screams. Nor was it the disgusting mess that they made when they struck the ground, since after all he would take no part in cleaning that up.

No. It was the fact that one of the descending miscreants had come disturbingly close to hitting the sacred body of the Imperator. If he had not chanced to look up, and taken an undignified leap backward, he would have been flattened. It was a pity that there was no way of punishing the wretch who had so intruded on his personal space; but the soldier had hardly been worth scraping up for ignominious burial.

And now it was full dawn—and the Federation ship was lifting steadily off the surface a couple of kilometers away. It was clear of the ground, rising toward the light cloud layer. Another defeat! Centurion Trisk and his underground force must have failed too! Ka-Grimmis firmed his jaw. It was a disgrace. There would be no medal for Trisk, even if he had died a hero's death. And for Trisk's own sake, the Great Benevolent hoped that he *had* died in the assault. Otherwise there would be protracted punishments, and after that a ritual slow eating.

But Centurion Trisk knew that, too. If he had survived the assault, he would have chosen to die by his own sword. A pity. So who *could* be punished?

Ka-Grimmis frowned at the morning sun. Then he opened all his eyes wide. Could that really be Centurion Trisk, walking toward him? He had a great lump on the top of his head, and a band-

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age wrapped around it—but he was definitely alive. And he was grinning, showing all his teeth and tongue!

How dare he!

"Great Magnificence." Trisk was walking up to Ka-Grimmis, too stunned or too confused to adopt the required grovel. "I bring great news."

"Great news!" Ka-Grimmis clenched his great paws. "You buffoon. Look at that." He pointed upward, to where *The Startled Goose* was just disappearing into the clouds. "They have escaped. How can you bring good news? I trust you are prepared for a slow and painful death—the most agonizing and unusual that the mind of the Great Benevolence can invent for you."

Amazingly, Trisk was still smiling!

"Your Supreme Munificence," he said. "They have gone—for a little while. But they will return. They *have* to return! And when they come, they will find that we will drive a hard bargain. The ransom will be large—all the secrets of Federation technology!"

The eyes of Ka-Grimmis popped out to their maximum. "Do I hear you right? You mean that you have taken hostages?"

"The best possible sort of hostages. Your Great Omnipotence, look at this." He gestured to a platoon of troops who had been standing a respectful distance away from them. They waddled forward, each carrying a precious burden.

"See, Your Greatness. They have gone—but we have captured the Earthmen's eggs! I will take them and hatch them. When they return, they will find their young in our hands. I think they will prove ready to accept whatever terms we ask."

"You speak well, but it will not be quite as you say." Ka-grimmis held up a paw. "Trisk, you have indeed done nobly—better than I hoped. But it is not appropriate that you should incubate the clutch. This is an affair of interstellar importance, and the hatching should be done by a personage of suitable superior rank."

He stepped across to the troops, and took one of the precious spheroids from them. He frowned as he felt the Langley. "My word. It is too cold! This is not right for a good hatching." He squatted down and carefully placed the sphere beneath his broad haunches. He wriggled a little.

"Far too cold. Well, we will cure all that. Centurion Trisk, have your men place all the other eggs beneath me. And arrange for plenty of food to be brought here. I will not move from this spot until the hatching is complete." He looked at the other's sour expression. "And as a mark of special favor, Trisk, I will permit you to sit near me during the warming and the hatching." He wriggled again, bringing more of his warm underside into contact with the Langleys.

"Come, Centurion. You must be patient. Patience is a great virtue. Watch, and wait. I feel sure that you will see results before too long." ■

● There is no such thing as a functional illiterate.

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James Kirkwood

ACCOUNTING SYSTEM

"What a *nice* man!" people said when they met Walter Johnson. And they were quite right. Walter wasn't rich, he wasn't especially smart or good-looking, or amibitious; he was just nice. While other men were setting out to conquer the world financially, or chasing the perfect lay, Walter was in accounting school and dating Mary, the girl next door. They were wed the day after Walter got his CPA, and they settled down at once to married respectability and bliss. Mary baked up a storm, Walter grew a vegetable garden. Mary knitted for charity; Walter did volunteer rescue work, two nights a week. They both attended church regularly, and Walter became a choir member and a mainstay of the parish.

And when Mary, after six years and three cute but not exceptionally beautiful children, ran off with Harold Dixon, who drove a Prosche, owned a tax-shelter farm in West Virginia, and carried contraceptives in his wallet, why then Walter buckled down to raising the three kids on his own. It never occurred to him to do anything else; and he never said one bad word about Mary (or even about Harold Dixon) in his whole life.

The children grew and moved on, the grandchildren arrived, and Walteer aged some. He wore bifocals, but he still looked on the world as cheerfully and as benevolently as ever. When he was sixty-two, he had a mild heart attack and had to give up his accounting job. No matter, he thought, he had enjoyed forty years of it. He settled into a helpful retirement, using his time for odd jobs around the town.

When he was seventy-one, the year's first snowstorm came early. He was outside helping one of the older parishioners to clear her drive, when the second attack came. Walter didn't remember hitting the ground.

Next thing he knew he was walking along a shiny road, with a sort of silvery mist rising to knee height—just the way he had always pictured it. And the kindly-looking, white-haired man at the massive gates was no surprise. It had to be Saint Peter.

(continued on page 77)

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A. Held, P. Yodzis, and E. Zechbruder

ON THE EINSTEIN–MURPHY INTERACTION[1]

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Abstract

This paper is a first attempt to reconcile the two great concepts of twentieth century physics: Einstein's theory of general relativity, and Murphy's law.

1: Introduction

One of the less important (perhaps the least important of all) problems facing physicists today is the challenge of reconciling the laws of physics with Murphy's law. Murphy's law states:

Whatever can go wrong, will go wrong.[3,4]

A well-known folk lemma associated with this Law maintains that

[1]This work has been supported in part by the Office of Aerospace Research, United States Air Force, on contract No. AF. AFOSR-$3.14159265.

[2]Refuses to divulge present address.

[3]There is a corollary which asserts in addition that it will go wrong at the most inconvenient possible moment. Investigation of this corollary is beyond the scope of this paper, but may form the basis for future research (if the authors are still employed after the appearance of this paper).

[4]The authors have been unable to identify the basis of this nomemclature. It seems first to have

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Bread always falls butter side down. It is this latter form that give rise to what we will term "the Einstein-Murphy interaction," which will be our concern in this paper. On the one hand it is well known that Murphy's law is true.[5] On the other hand, the laws of physics are claimed by some physicists to be true. Does this lead to a contradiction?

In order to test this, we have seized upon the problem which goes to the heart of the matter—namely, a slice of buttered bread with zero support in an Einstein field—and subjected it to rigorous theoretical analysis.[6] In order to bring out the essentials of the problem we have added to the butter a further layer consisting of jam. Actually our analysis is not entirely rigorous, as our calculation will be done in the Newtonian approximation. (We justify this on the grounds that the probability of anyone actually eating his breakfast in the vicinity of nontrivial curvature is negligible.)

2: Statement of the Problem

We begin by considering a loaf of bread which, for our purposes, will be considered to be a compact manifold admitting a well-behaved foliation. Each folium may be thickened and approximated by a rectangular parallelpiped of homogeneous density.[7,8] Each folium (hereafter referred to as "slice") can be represented as in Figure 1 in the limit $\varepsilon \to 0$. Note that it would be invalid to apply such a limiting process to the jam layer, as the amount of jam generally spread (or as is often the case, spooned) tends to be appreciable.

With these reasonable assumptions, we find the center of gravity of the slice to lie at its geometric center, at a height

$$d = \frac{1}{2} \frac{\rho_b b^2 + \rho_j [(b+j)^2 - b^2]}{\rho_b b + \rho_j j}$$

where ρ_b and ρ_j are the densities of the bread and jam sections, respectively.

Also essential to the calculation will be the moment of inertia of the slice. For this calculation we will assume the slice to be a thin plate; the moment of inertia D is calculated for an axis perpendicular to an edge of length l and passing through the center of gravity of

appeared in print in the 1950s, but all suggestions for the name Murphy are conceded to be apocryphal. A typical example reads [1]: "One day a teacher named Murphy wanted to demonstrate the laws of probability to his mathematics class. He had 30 of his students spread peanut butter on slices of bread, then toss the bread into the air to see if half would fall on the dry side and half on the buttered side. As it turned out, 29 of the slices landed peanut butter side on the floor, while the thirtieth stuck to the ceiling." Copyright © 1971 by William Morris and Mary Morris. Reprinted by permission of Harper and Row, Publishers, Inc.

[5]The reader is asked to supply a verification from his/her own personal experience.

[6]Pioneering experimental work has been reported by Jennings. Since his article is inaccessable, we have quoted the relevant passages in the Appendix.

[7]This homogeneity assumption is equivalent to neglecting the inhomogeneity inherent in the boundary (also knows as crust) of the manifold.

[8]We will require for our slicing that the resultant folia be topologically simple. This precludes the consideration of falling bagels, whose aerodynamic properties can be expected to differ radically from those of topologically simple slices. The authors are grateful to Professor P.G. Bergmann for pointing out this hole in their argument.

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the slice. The expression thus arrived at is

$$I = \frac{ml^2}{12}$$

where m is the total mass of the slice,
l is the length of the slice,
12 is the number in a dozen.[9]

Finally in our choice of numerical values for the slice parameters, eschewing a standard density, we have performed the analysis using the following four examples which may legitimately be considered to cover the extreme cases:

1. North German pumpernickel, no jam.
2. North German pumpernickel, with thick jam.
3. Toasted presliced American bread, no jam.[10]
4. Toasted presliced American bread, with thick jam.

As the density of the jam plays an

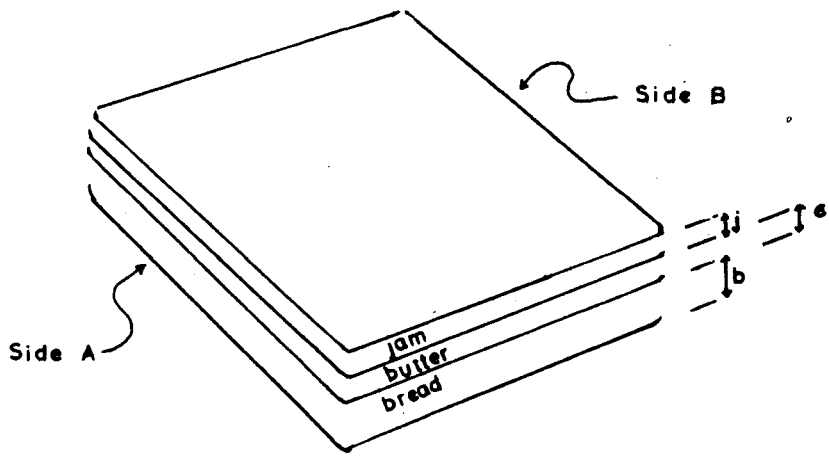

Figure 1. Folium before limiting process.

essential role, the authors researched the problem thoroughly.[11] The average densities were found to range from 1.115 g/cm³ (Migros Cranberry Preserve) to 1.400 g/cm³ (Robertson Scotch Orange Marmalade). For purposes of

[9]J. Croxall has argued that as defined, because of our subject nature, 12 should be regarded as 13. In defense of 12, the authors point out that a baker's dozen is a geographically local concept where science is global.

[10]As this experiment was carried out in Europe, presliced American bread was not available to us. The actual measurements were carried out

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computation, the average value is used throughout. Numerical values are summarized in Table I.

3: Initial Conditions

All discussions of this problem that the authors have been able to locate have paid insufficient attention to the initial conditions. In the simple case of the slice's being knocked off of a table, no one seems to have taken into account that very few people place their slice upon the table jam side down (JSD). (This statement applies *a fortiori* to the experiment cited in footnote 4, where even fewer of the students will have placed their slices JSD on their hand.)

Case	ρ_b (g/cm^3)	b (cm)	l (cm)	ρ_j (g/cm^3)	j (cm)
1	0.80	0.6	4.0	–	0.0
2	0.80	0.6	4.0	1.347	0.7
3	0.27	1.2	7.5	–	0.0
4	0.27	1.2	7.5	1.347	0.7

Table I. Slice Parameters

The following realistic initial conditions will be imposed on the dynamics. At time $t = 0$, the slice will be presumed to lie at rest with the jammed side in the direction of increasing potential of the gravitational field. A further assumption will be that the slice is so positioned as to have side *A* (see Figure 1) parallel to the edge off which it is to be brushed.

At time δ, the slice is (inadvertently) brushed by a hand (elbow?) and moves along the table with constant velocity v_o in a direction perpendicular to the table edge so that side *A* remains parallel to the aforementioned edge. To obtain a reasonable upper limit for the value of v_o, measurements were carried out by B. Wälti of the Physics Department of the University of Bern. It was found that the maximum velocity attainable by the human hand when propelled by and remaining attached to its natural owner is of the order of 1500 cm/sec. We have, taking into account such factors as the unintentional nature of the act, the possibility that it is brushed with a forearm or elbow, and early morning torpor, adopted an upper limit of 300 cm/sec.

4: Theory

Since our calculations are quite elementary, we present only the end results.[12]

(1) Equation of motion of slice while still in contact with (but over edge of)

using English toasting bread, which may be considered a reasonable approximation.

[11]It is for supplying funds to enable the purchase of 36 varieties of jam that we are grateful to the Office of Aerospace Research.

[12]The authors are grateful to the longhaired graduate student with the blue turtleneck sweater who straightened them out on a point of elementary machanics which arose in connection with this work.

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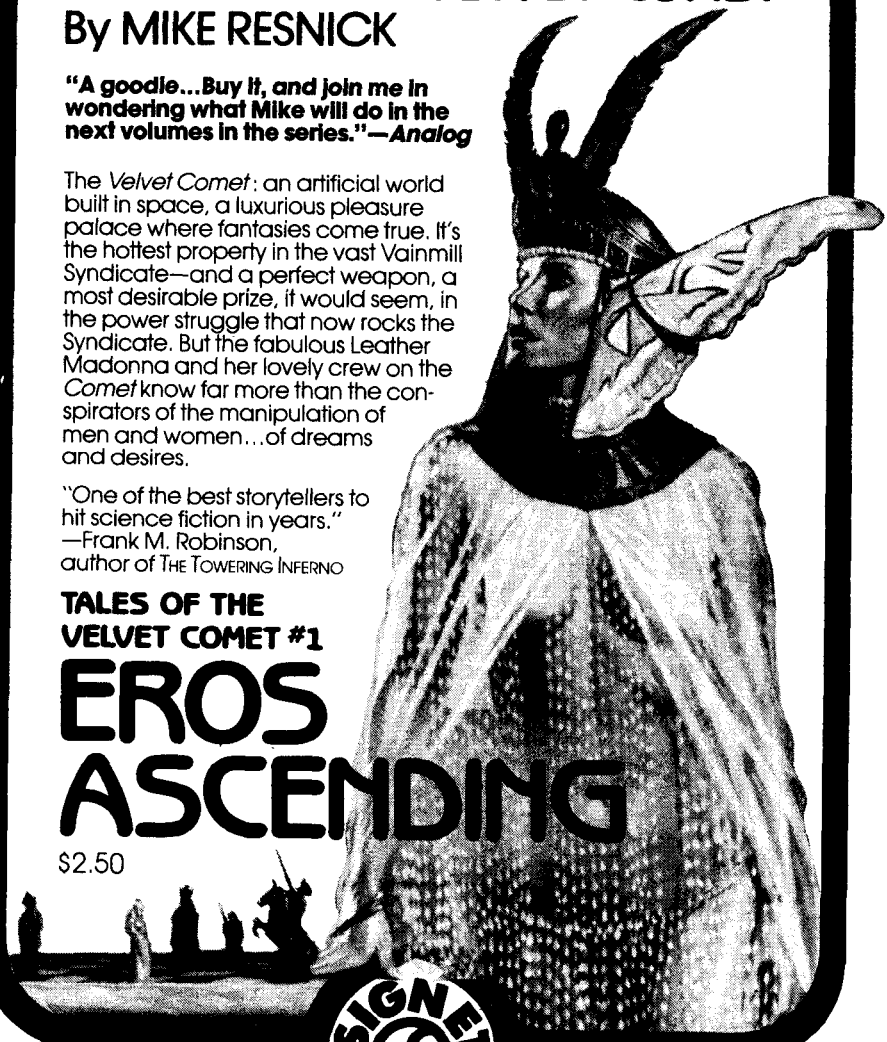

SIGNET SCIENCE FICTION

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table (phase I):

$$\frac{d\psi}{dt} = \frac{rd\psi^2 - 2rs\psi - gr\cos\theta}{r^2 + I/m}$$

$$\frac{ds}{dt} = [r(r^2 + d^2 + I/m)\psi^2 - 2drs\psi - gdr\cos\theta - g(r^2 + I/m)\sin\theta]$$

where the coordinates r and Θ are defined as in Figure 2 and

$$\frac{d\theta}{dt} = \psi$$

$$\frac{dr}{dt} = s$$

(2) Equation of motion (integrated form) of slice in time interval $ft_1<t<t_2$ (phase II), where bread severs contact with table at time t_1 and establishes contact with floor (carpet) at time t_2:

$$x(t) = x(t_1) + \frac{dx}{dt}(t_1)\cdot(t - t_1)$$

$$y(t) = y(t_1) + \frac{dy}{dt}(t_1)\cdot(t - t_1) - \frac{1}{2}g(t - t_1)^2$$

$$\phi(t) = \phi(t_1) + \frac{d\phi}{dt}(t_1)\cdot(t - t_1)$$

where

$$x = r\cos\theta + d\cos\phi$$

$$y = r\sin\theta + d\sin\phi$$

As well may be imagined, the physics of the transition from phase *II* (in flight) to phase III (landing) are nontrivial. This nontriviality is manifest in the following nonstable contact scenarios. (To simplify this discussion, we introduce the unphysical concept of "bare slice," that is, one which is devoid of butter and jam; and the two end configurations [recall Figure 1] *A*—*B* and *B*—*A*.)

(1) The slice lands as in Figure 3 with $\phi<0$ leading unavoidably to end con-

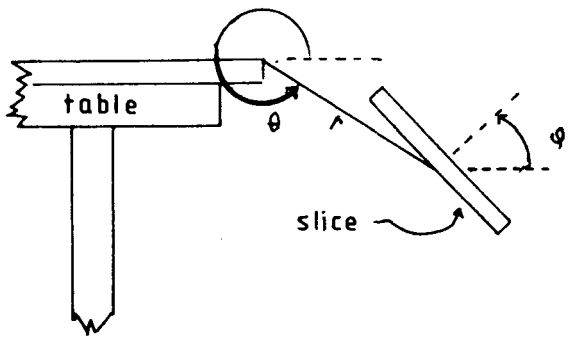

Figure 2. Phase II—Slice is moving toward bottom of page.

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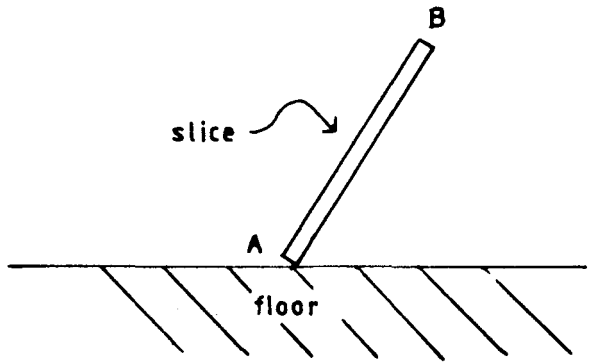

Figure 3. Phase III—immediately following contact.

figuration *A*—*B* (table is to left of slice in Figure 3).

(2) The slice lands as in Figure 4 with an angle $\phi > \phi_{crit}$ (see below) such that the end configuration is *B*—*A*.

(3) The slice lands such that $\phi_{crit} > \phi > 0$, and depending on horizontal velocity, coefficient of friction between bread and floor, and magnitude of bread's angular momentum, the energy associated with the angular momentum may be converted into flip energy, which once again results in the end configuration *A*—*B*.

To return to the real world, we dress our bare slice with butter and jam on one side. This then gives rise to six distinct possibilities.

To simplify the discussion of case 3, we will use a critical coefficient of friction μ_{crit}, which is defined to be the minimum coefficient of friction between bread and floor which is required, for a given angular momentum, contact angle ϕ, and horizontal velocity, to flip the slice. In some cases, μ_{crit} is negative. We have interpreted this to mean that the kinetic energy of the slice after contact was insufficient to cause a flip and hence deduced no flip in these cases.

5: Results

As the results turned out to be insensitive to the slice parameters, we show in Figure 5 a plot of μ_{crit} as a function of initial velocity v for the parameter values "toasted presliced American bread, thickly jammed."

The proverbial perceptive reader will notice that the graph does not extend to the left of $v = 90$. (For the rest of you clots we point it out.) This effect arises because below this velocity the slice unconditionally lands JSD in accordance with Murphy's law. Thus our results agree with Murphy's law in *all* cases provided that the slice-floor coefficient of friction is in excess of 1.65. Obviously in the case of deep-pile rugs (which by further application of Mur-

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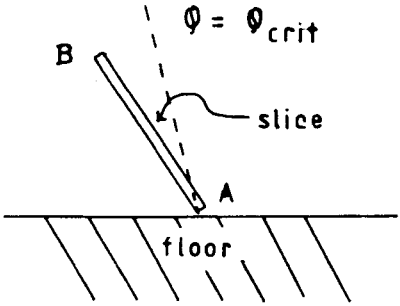

Figure 4. Visualization of ϕ_{crit}.

phy's law are most likely to lie under falling jammed bread) the value 1.65 is easily exceeded. In an extensive search of the literature we were unable to locate a bread-linoleum coefficient of friction. We have therefore chosen a reasonable approximation, namely tungsten carbide (clean) on tungsten carbide (clean) at 1600°C, for which the coefficient of friction is 1.8 [3].[13] This suggests that we may safely claim a bread-linoleum coefficient of friction of more than 1.65 as required.

6: Discussion and Conclusion

As is well known, Murphy's law is true.[14] We have seen that the laws of physics as applied to falling bread are not in contradiction with the universal truth of Murphy's law. We therefore conclude that these laws are to some

[13]We have neglected edge effects. It is clear that any jam drooling over the edge will raise this figure by a not inconsiderable amount.

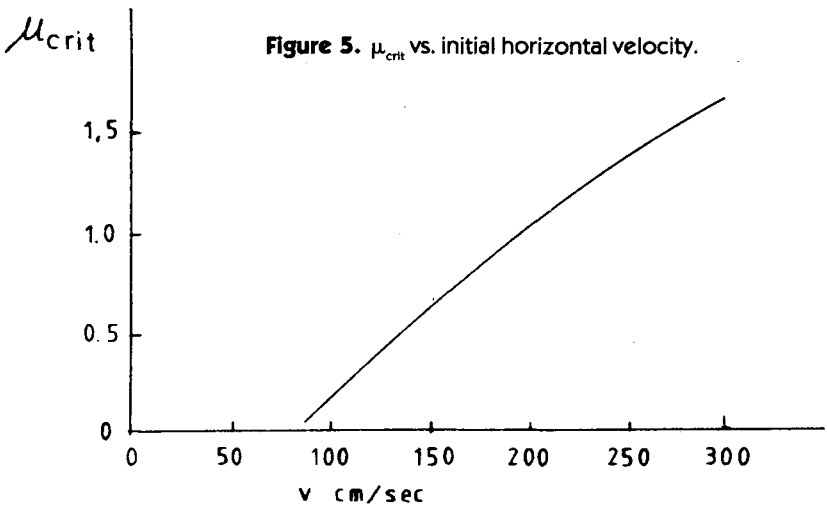

Figure 5. μ_{crit} vs. initial horizontal velocity.

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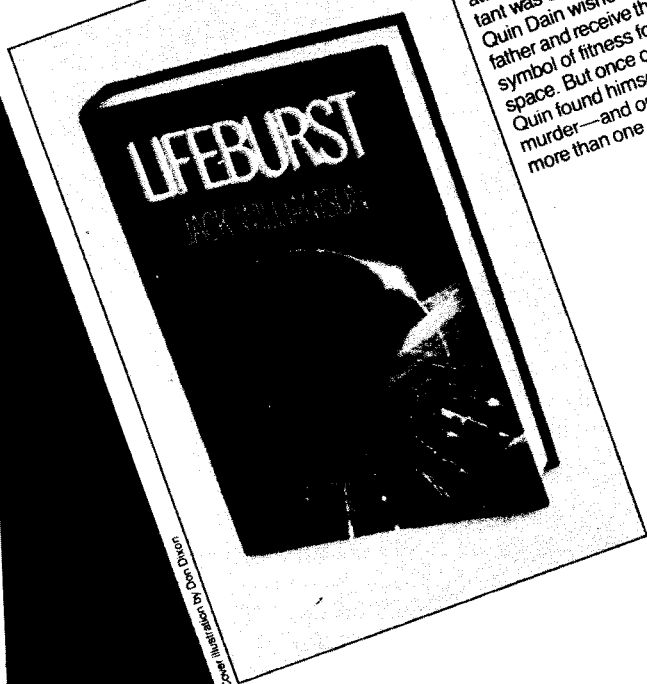

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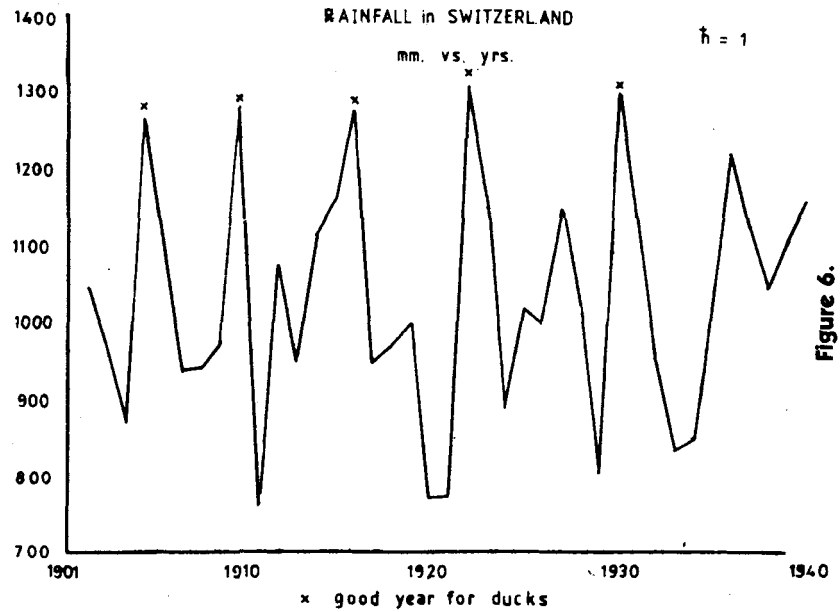

Figure 6.

extent valid. Moreover, see Figure 6.[15]

Note Added in Proof: After reading a preprint of this article, a colleague from the department of experimental physics[16] suggested that we actually do the experiment. Although unable to see the relation of such a procedure to theoretical physics, we agreed to the test. To our amazement, the bread landed jam side up (JSU). The problem whether this constitutes a proof of or a counter-example to Murphy's law we bequeath to this and future generations of philosophers.

Note Added to Note Added in Proof in Proof: Professor W. Israel on reading the proofs related the following which he feels may be essential to the true understanding of the implications of the above.

Many years ago in a small stätl in Russia there lived a schlemiel. One day as he was having his breakfast, his bread as usual fell off of the table. However to his surprise the bread landed goose fat side up—something which had never happened to him before. He regarded this as mildly amusing, but thought no more of it. The following morning when again he knocked his bread off of the

[14]The reader who did not supply a verification from personal experience when gently asked to do so in footnote 5 is now required to do so.

[15]This graph has nothing to do with the problem under discussion. It is inserted purely in order to pad out this paper.

[16]He expects to have his name mentioned here. He is wrong.

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table it again landed goose fat side up. This gave him cause for thought. When on the third consecutive morning his bread fell and once again, to his utter amazement, landed goose fat side up, he decided that this was a matter of great import. He promptly went to the village elders, told his tale, and then asked if it were possible that he were no longer a schlemiel. The elders were puzzled and after much discussion decided that there was indeed something here that they did not understand and so they decided to go to the local Rabbi for his interpretation. This they did.

The Rabbi was a man of great wisdom and learning, whose reputation was known far and wide. He listened attentively while the elders explained what had happened and posed to him the problem. "Is the schlemiel still a schlemiel?" He nodded sagely and said that he could not answer the question immediately but would retire to his study to contemplate the matter.

Several hours later he emerged and announced triumphantly that the problem was solved. The schlemiel was still a schlemiel—"the bread," he said, "had, as was to be expected, fallen goose fat side down—but the schlemiel, being a schlemiel, had smeared his goose fat on the wrong side."

Appendix

A convenient point of departure is provided by the famous Clarke-Trimble experiments of 1935. Clarke-Trimble was not primarily a physicist, and his great discovery of the Graduated Hostility of Things was made almost accidentally. During some research into the relation between periods of the day and human bad temper, Clark-Trimble, a leading Cambridge psychologist, came to the conclusion that low human dynamics in the early morning could not sufficiently explain the apparent hostility of Things at the breakfast table—the way honey gets between the fingers, the unfoldability of newspapers, etc. In the experiments which finally confirmed him in this view, and which he demonstrated before the Royal Society in London, Clarke-Trimble arranged four hundred pieces of carpet in ascending degrees of quality, from coarse matting to priceless Chinese silk. Pieces of toast and marmalade, graded, weighed and measured, were then dropped on each piece of carpet, and the marmalade-downward incidence was statistically analyzed. The toast fell right-side up every time on the cheap carpet, except when the cheap carpet was screened from the rest (in which case the toast did not know that Clarke-Trimble had other and better carpets), and it fell marmalade downward every time on the Chinese silk. Most remarkable of all, the marmalade-downward incidence for the intermediate grades was found to vary exactly with the quality of carpet.[17] ■

[17]Reprinted with permission of The Bodley Head from *Oddly Enough* by Paul Jennings.

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Katherine tapped on the study door. "Mail's here."

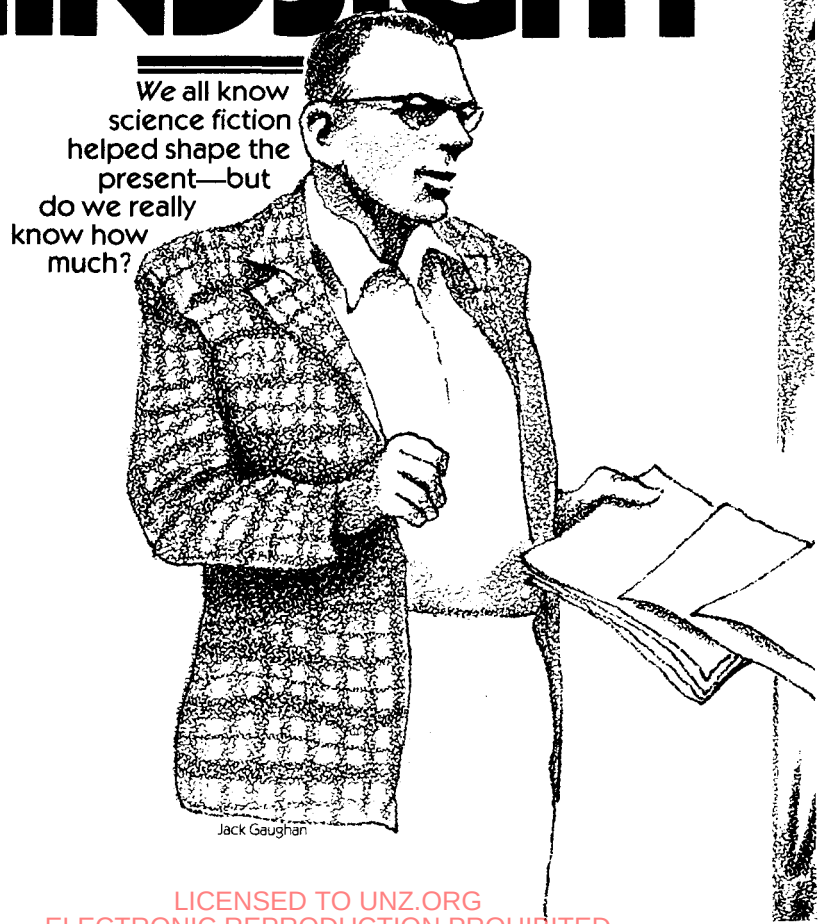
"Be out soon," Pete Lundquist called, not looking up from his typewriter. He flicked the carriage return lever. The paper advanced a double space. A small part of his mind noticed that the ribbon needed changing; it was nearer gray than black. All his conscious attention, though, was focused on the novelette he was working on.

Another couple of paragraphs got him to the end of a section and, by luck, to the end of a page at the same time. A good enough place to stop for a while, he decided. He rolled the story out of

Eric G. Iverson

HINDSIGHT

We all know science fiction helped shape the present—but do we really know how much?



Jack Gaughan

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the big Underwood office machine, peeled off the carbons one by one and put them in their stacks, and set the original on top of the typewriter to come back to later.

He stetched till his bones creaked. He was tall enough that his fingertips only missed the ceiling by a few inches: a thin stick of a man, with angular, not quite handsome features, very blue eyes, and a shock of blond hair that no amount of Wildroot or Vitalis could flatten for long. In a couple of weeks he would turn thirty, something he tried not to remember.

"How's it going?" Katherine asked when he finally emerged. That was not just interest in the story for its own sake. When a free-lancer had trouble writing, steak turned to hamburger and hamburger to macaroni and cheese.

She relaxed, a little, as he said, "Not bad. I should be done in a couple of days, and get it out." He looked at her fondly. Physically they were total opposites: she was dark and inclined to plumpness, and he could rest his chin on the top of her head. But she had a good deal of the discipline that kept him steadily at the typewriter. With checks coming in on no schedule and for wildly varying amounts, she needed it.

"What's the good news today?" he asked.

"Not much." She displayed two envelopes and a magazine in a brown paper wrapper. "A gas bill, a check from *Interplanetary*—"

"The one should just about cover the other," he said sourly. *Interplanetary* paid late and not much and probably wasn't long for this world, but they had bought a short story he couldn't unload on any better market, so he had no real right to complain.

"—and the new *Astonishing*," Katherine finished.

"Aha!" he said. "Now I have the excuse I need for a break." She made a face at him; that just meant he would be busy later. She went into the kitchen to start dinner.

He lit a Chesterfield and sank into a shabby but comfortable overstuffed armchair with a sigh of contentment. It was a couple of minutes before four. He turned on the radio to catch the hourly news. The dial lit; he waited for the tubes to warm up and the sound to start.

He stripped off the *Astonishing*'s wrapper, turned to the table of contents. He didn't have anything in this month's issue, though he had been in the last one and would show up again in a couple of months. He saw with pleasure that there was a long novelette by Mark Gordian. He wondered what this one would be like. Gordian had mastered a number of different styles.

First things first, he thought. No one who read *Astonishing Science Fiction* put off the editorial. James McGregor could be—often tried to be—infuriating, but he was never dull.

As Pete read, he listened to the news with half an ear. Queen Elizabeth's coronation dominated it. The Korean truce talks at Panmunjon dragged on and on. A new political party had been formed in the Philippines, and was promising great things. "And in sports," the announcer went on, "both the Seals and the Oaks fell further behind the Pacific Coast League-leading Hollywood Stars last night as—"

He was just turning to the Gordian

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story when the side door slammed. Not for the first time, he wondered how two small boys managed to sound like a platoon. "What's going on there?" he said, trying without much luck to sound stern.

"Daddy's out!" Wayne shouted joyfully. The six-year-old sounded as if Pete had just been released from jail. He came charging into the living room and flung himself at his father's lap. His brother Carl, who was seven, was right behind. Pete barely saved the *Astonishing* from getting squashed.

"And what have you two been up to?" he asked.

"Playing with Stevie next door," Carl answered. "His cousin Philip is visiting him from Denver. He's nine. He can throw a curve ball."

"That's nice," Pete said. "Go wash your hands. With soap." He got nervous whenever his boys made a new friend—who knew whether the kid might be bringing infantile paralysis with him? The polio season was just starting, but it was already worse than last year's, and there had been almost 60,000 cases in 1952.

Pete did not get back to the *Astonishing* until he was done drying the dinner dishes and putting them away. He threw on a cardigan sweater; northern California late spring evenings were nothing like the ones he had grown up with in Wisconsin. But neither were the winters, thank God.

He flipped to the Gordian story. It was called "Reactions," which might mean anything. With Gordian, you never could tell—take the serial with the innocuous name *Watergate*, for instance. Critics—serious critics—talked about the book version in the same breath with *1984*. To Pete, though, it was science fiction at its best, straightforward extrapolation of how difficult government skulduggery would inevitably become when copy machines and recorders were everyday items.

It also made Joe McCarthy hopping mad, something else Pete approved of.

It was hard to see how the same author could also write "Houston, We Have a Problem," a gripping take of an early moon flight gone wrong, and *Tet Offensive*, a future war gone wronger. Barring the exotic hardware, that one looked disquietingly possible too, if you noticed the page-four stories about the fun the French were having trying to hold on to Indochina.

But Gordian—damn him!—didn't confine himself to the near future. "Neutron Star" had had all the astronomers who read science fiction buzzing a couple of years ago (and there were a lot of them). So did "Supernova," though Pete found the casual way computing machines were handled in that

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one even more exciting. It was a yarn he wished he'd written himself.

There were literally dozens more, not all in *Astonishing* by any means; *Galactic* and *Strangeness and Science Fantasy* had their share too. "All You Zombies" made every other time-travel story obsolete. "Sunjammer I" and "Sunjammer II" struck Pete as the prose equivalent of a jazz pianist improvising on a theme. And "Time Considered as a Helix of Semi-Precious Stones" was a literary firework that defied description.

Ever since Gordian started selling in 1949, he'd turned out even more words than Asimov, and not a bad story in the bunch. All things considered, he was the one writer who made Pete feel inadequate.

He settled in and began to read. By the end of the third page, he felt his hair trying to stand on end. He had not been so afraid since he'd driven a tank-destroyer through the crumbling wreckage of the Third Reich. But that had been a simple fear, fear that a kid with a grenade or an old man with a *Panzerfaust* or some diehard in a Royal Tiger tank would make sure he never saw the States again. This—

Discipline or no, he got very little writing done that night.

He spent the next week in a fever of anticipation waiting for McGregor's reply to his letter. He'd sent it airmail, and stuck another red six-cent stamp on the self-addressed return envelope he enclosed with it. At the moment, answers worried him more than pennies.

When the note finally came, he gritted his teeth against the anticlimax. "Dear Pete," the *Astonishing* editor had written, "I'm very sorry that Gordian picked off an idea you thought was yours, but things like that happen all the time (you should see my slush-pile!). I'm sure you still have enough fresh notions to keep you going. Let me see one of those. Best, Jim."

Pete threw the letter on the kitchen table. "He doesn't believe me," he said bitterly.

"Would you, on someone's word alone?" Katherine said. "I'm still not sure I do, and I've seen your outline for myself."

"I suppose you're right," Pete admitted. "I guess I just think of Jim McGregor as slightly more than human. Well, by Christ, I can show him."

He turned on his heel and hurried into the study. He ran a fresh piece of paper into the typewriter. "Dear Jim," he wrote, "I realize I should have sent the enclosed with my first letter to you. I trust you will take my word that it was drafted some months ago. If you find it interesting, let me know. Yours, Pete Lundquist."

He looked at the letter for a moment, added a P.S.: "I don't know when I would have gotten around to writing from this skeleton. I have several ideas ahead of it, and one or two of them look like novels. But it would have happened eventully, I'm sure. You tell me what that story would have looked like."

This envelope was a lot fatter than the last one, but he sent it airmail too.

Three days later the telephone rang at 6:30 A.M. The unexpected noise made Pete cut himself shaving. Holding a piece of tissue to his chin, he got to the phone a split second ahead of his wife.

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Their eyes met in shared alarm; calls at odd hours generally spelled trouble.

"Mr. Peter Lundquist, please," the operator said.

"Speaking."

The woman's next words were a blessed relief: "I have a long-distance person-to-person call from a James McGregor in New York City."

"Yes, go ahead," Pete said, and mouthed to Katherine, "It's McGregor."

"Ho, ho! The game's afoot, Watson."

He waved her to silence. The editor's voice came on the line, raspy not just with distance but also from too many cigarettes: "That you, Pete?"

"I'm here." He had to stop himself from adding "sir." So did most people who talked with McGregor.

"I'm only going to ask you once, and I expect a straight answer: are you pulling my leg?"

Pete enjoyed a certain reputation as a practical joker, which at the moment he could have done without. "No," he said.

"All right, then. In a way, I was hoping you were. As is, how do you feel about meeting me in Los Angeles next week?"

"Why Los Angeles?" Pete was not at his best early in the morning, and the three-hour time difference from New York only made McGregor's advantage worse.

The *Astonishing* editor's sharp sniff showed he was holding onto his patience with both hands. "Because this Mark Gordian writes out of a post-office box in a town called Gardena. It took some work with a big atlas to find the place, but it's about fifteen miles south of L.A. I'd like to have a word with Gordian —don't you think you would too?"

Pete gulped. "Put like that, I suppose I would. Uh, Jim . . . what do you think is going on?"

"I don't know." McGregor sounded angry at the admission. "The first thing that occurs to me is telepathy, and I don't much fancy that for an explanation either."

"Why not? If anyone's been urging more basic research in extrasensory perception lately, it's you."

"Research, yes. But if Gordian picked this out of your brain, he stands to everyone else on Earth like the Empire State Building to a girl's dollhouse. I edit science fiction; I never planned on living it."

That Pete understood down to the ground. He had majored in engineering at college, and drew a very firm line between what was real and what wasn't. He shivered as the implications began to sink in. "If Gordian's a telepath, how do we know he's not reading our minds right now?"

"We don't," McGregor said. "And I have another question for you: if Gordian's a telepath, why is he reading *your* mind instead of Einstein's or Eisenhower's or Albert Schweitzer's? You'll be driving down to L.A., won't you?"

"I guess so," Pete said absently. He was still chewing on the more important query: in conversation as in his letters, McGregor had a gift for going right to the heart of an issue.

"Good. Pick me up at the airport, then. I'll be getting in at about a quarter past five on Friday evening—it's Trans World flight 107. If you've come up

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with any good answers, give 'em to me then."

"All right," Pete said. He was talking to a dead line.

Pete left with first light Thursday morning. By starting early, he got into Los Angeles before dark. The ride south along U.S. 101 was both hot and dull. Radio stations faded in and out as he drove. A little above Santa Barbara, the road came down to the Pacific. It was pretty enough to tempt Pete to stay on the Coast Highway the rest of the way, but he went back to 101 when it jogged inland again below Ventura and ran east toward the San Fernando Valley.

Sepulveda Boulevard led him south through the Sepulveda Pass and into the more built-up part of Los Angeles. None of the famous freeways was anywhere close; the nearest one, the Harbor, stopped just south of downtown, though his map showed its projected route all the way out to San Pedro.

He checked into a motel in a suburban district called Westchester, used the change from his ten-spot to buy a sandwich and Coke at the coffeeshop down the street, then came back, took a shower, and went to sleep.

The six-lane tunnel that took Sepulveda under the airport's runways had only been open for a couple of months. Pete could see how much easier it made access to the facility. It had also allowed the runways to be lengthened.

The big silver DC-6 rolled to a stop about half an hour late. The enormous propellors spun themselves to silence. The people who filed off the plane looked weary, and no wonder; counting a forty-five-minute layover in St. Louis, they had been traveling for ten hours.

"Jim!" Pete called, striding forward to shake the editor's hand. As always, he was disappointed that James McGregor looked nothing like Kimball Kinnison. McGregor was in his early forties, of average height and build. His sandy crewcut was going gray above his ears, and his hair thinned at the temples. When younger, his face had been beaky; now craggy was a better word. Only his eyes seemed Lensman-keen, and even then one had to look sharply, for he wore heavy, dark-framed glasses.

"Good to see you," McGregor said. They had met several times at conventions and other gatherings, and Pete had dropped into the *Astonishing* office once while in New York on other business. They argued for two hours. Pete lost, over and over, but the experience gave him notions for three new stories, all of which McGregor bought.

"Let's get my luggage," the editor said, "and some food, and a drink, and then back to wherever you're staying. I have some things to show you, now."

"Okay," Pete said, but disappointedly: "if you don't want to go down to Gardena first."

"What for? All we have to go on is a post-office box number, and the post office is closed."

Pete shook his head in chagrin at not having thought of that, but McGregor was already going on: "Unless, of course, he has a phone number in the local book. Worth a try, don't you think?" They were passing a bank of telephones on the way to the baggage claim area; McGregor found a changed phone book for the right part of town,

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pawed through its dogeared pages. "... Gordan ... Gorden ... Gordillo—so much for that. Well, we're no worse off."

"No," Pete said, still slightly stunned. The *Astonishing* editor could no more help throwing off ideas than a fissioning plutonium atom could help spitting neutrons, and the results were about as explosive.

Over dinner at the coffeeshop near the motel, the talk had nothing to do with the mysterious Mark Gordian. Perhaps because he was tired, McGregor was full of sarcasm about the rioting in East Germany ("Which shows where the workers stand in the workers' paradise"), the unmanned Navajo guided bomber ("It'll be obsolete before it flies. Rockets are faster than jets."), and the way CBS and NBC has handled the televising of Queen Elizabeth's coronation ("Imagine sending P-51's to meet the British jet that brought the film to Canada. The RCAF has jets of their own, and got their film to the lab first and on the air first. Naturally—jets are faster than prop jobs.").

"It's still remarkable, having seen it the same day it happened," Pete insisted.

"Oh, no doubt. Me, though, I'll take one of Arthur Clarke's relay satellites, and see it the same minute it happenes." The thing about McGregor, Pete thought, was that "good enough" would not do for him—he insisted on perfection. Sometimes he managed to wring it out of people, too.

Back at the motel, the editor unlocked the suitcase he had parked by the bed before going out to eat. He pulled out a fat manila folder. "What's in there?" Pete asked.

"A couple of manuscripts I've got from Gordian that I pulled out of the file. Look them over; I'd like to hear what you think of them." McGregor plainly had no intention of saying anything more for a bit; he sat in the motel room's shabby armchair puffing on an Old Gold while Pete sprawled full-length on the bed, reading.

" 'The Hole Man,' eh?" Pete said. "That's a nice piece of work—gloomy, but nice."

McGregor only nodded and waited.

Pete felt flustered, as if facing a one-man oral exam committee without having studied. He nervously stacked the pages the editor had given him.

His fingers caught wrongeness his eyes had missed. "Funny paper," he remarked; all four edges were rough, as if they had been torn off from perforations. "I've heard of typing paper sold in a roll, so you can run it into your typewriter continuously and rip off each sheet as you finish, but that would have smooth sides."

"So it would," McGregor said. "I *don't understand this either*, but I noticed it. Keep going."

After a few minutes, Pete said, "That's a high-quality ribbon he's using." He wasn't sure what made him notice that—probably a twinge of guilt at the decrepit state of his own.

"It's what they call a carbon film ribbon," McGregor explained. "They use them for legal documents and other things that might need to be photostatted. The things are hard to find and hideously expensive, because you can only go through them once. I've never had

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stories typed on them submitted before, I can tell you that."

"You've been researching this," Pete said accusingly.

"Guilty as charged. I can also tell you that one of New York's better detectives looked at some of these pages and couldn't match the typeface to anything in his collection. He was so surprised he didn't charge me."

"Curiouser and curiouser."

"Isn't it? The gumshoe did notice something I flat-out missed. You're not spotting it, but it's pretty obvious when it gets pointed out to you."

Pete stared without result at the pages in front of him. "All right, I give up. What is it?"

"Look at the right margin."

"My God! It's justified!" Pete felt like kicking himself for not noticing that right away. Every typescript he'd ever seen had a ragged right margin, but the pages of "The Hole Man" were so consistent and seemed so natural the way they were that their strangeness slipped by him.

"Very good," the *Astonishing* editor said. "Again, there's a gadget that will pull off the same stunt, but it's hard to come by—and why on earth would you bother? The result's pretty, sure, but more trouble than it's worth."

"I'd say so." Pete sat up on the bed and took out a cigarette—he needed something to calm his nerves. He tapped the end of the Chesterfield on the nightstand to tamp down the tobacco; filtertips struck him as vaguely effeminate, and made the smoke taste like sawdust anyway. After a couple of deep drags, he said, "Whatever Gordian is, I don't think he's a telepath."

McGregor peered at him over the tops of his glasses. "Why's that?"

"It's not so much all this." He waved at the papers beside him. "This only helps confirm what I really decided on the drive down here—about 'Reactions,' I mean."

"How's that?"

"How would I put it? Something like this, maybe: there's more in the story you printed than I've thought of yet. The ideas, the world, even the names match, but the story has a depth of detail that I wouldn't begin to worry about until I actually started writing."

The editor steepled his fingertips. "And so? What conclusions do you draw?"

"Me? I'd rather not." Pete said, shaking his head. "I'd sooner believe in mind-reading."

For the first time, he saw McGregor angry at him. "If you reject the data, what do you work from then? A ouija board, or the entrails of a sheep?"

"That's not fair," Pete protested. He felt himself flushing. "The whole thing is impossible."

"It is? Then why are we in Los Angeles?"

Pete had no good answer to that. McGregor got up and swatted him on the shoulder. "Nothing we can do about it at the moment, anyway. Maybe things will clear up when we meet Gordian. For now, though, I'd just as soon go to bed. I'm still running on East Coast time."

"Fair enough," Pete said, but he was a long time falling asleep.

"This is part of the fourth largest city in the country?" McGregor said incre-

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dulously as Pete passed the airport going south on Sepulveda.

"Well, actually, no," Pete answered. "According to that map on your lap, this is the sovereign city of El Segundo." There were streets and houses on the west side of Sepulveda; most of the east side was simply a field, brown under the summer sun and full of tumbleweeds.

"Mostly oilwells, from what I can see of it."

"It does look that way." Pete turned left onto El Segundo Boulevard. He drove for about a mile before coming on more houses. Then, just west of Jawthorne High School, the Chevy bumped over the streetcar tracks.

"Sign of life," McGregor said. "A few, anyway."

About four miles later, Pete turned right on Vermont and headed south. The street was wide and looked as though it ought to be important, but it had a dirt center divider and there were good long stretches of field along it. It did, however, boast a supermarket, a liquor store across the street, and a couple of large, garish buildings that identified themselves as "Clubs." "Wonder what those are," McGregor said.

"Poker parlors," Pete said, pleased as always when he knew something the *Astonishing* editor didn't (it didn't happen very often). "Under California law, draw poker's a game of skill, and it's local option whether to allow it or not. This Gardena makes a bundle off the taxes the clubs pay."

Gardena Boulevard, where the post office was, was as much of a business district as the little town had. There was a Rexall drugstore on the corner at Vermont, a small department store and a jeweler's a little farther west, and then a pink stucco Bank of America, its gold Old English lettering gleaming in the morning sun.

But even Gardena Boulevard had its share of houses, mostly white clapboard buildings that dated from well before the war. The post office was next to one of those, just west of a narrow street called Budlong. Pete pulled in in front of it; there was plenty of room to park. "Now what? he said as he killed the engine.

McGregor was wrestling with the roadmap; as Pete might have expected, his competence extended to refolding one of the damned things. He tossed it into the glove compartment. "Now," he said, "we go in and wait for Mr. Gordian to open box 148."

"And get ourselves thrown out by the postmaster when we hang around for six or eight hours looking for somebody who doesn't show up."

"Nonsense. Writers haunt mailboxes; it's part of the disease. As for the postmaster, leave him to me.

"I suppose I have to." They were already walking up the low, broad steps into the building.

But it proved just as the editor had predicted. When the gaunt fellow behind the counter asked "Help you gents?", McGregor said, "Yes. Could you tell me what time you usually put mail in your boxes? We're supposed to meet someone here then."

The man accepted that as casually as McGregor had said it. "Usually about eleven," he answered. "You've got some time to use up."

"Any place we could get a cup of

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coffee?'' Pete asked, not wanting to be entirely left out.

''There's a delicatessen down the block there,'' the man said. He pointed west. ''Reckon they can help you.''

The coffee at Giuliano's was scalding hot and strong enough to growl, but good. While Pete and McGregor were drinking it, a Japanese man wearing a suit and hat came in; a lot of the people on the street in Gardena were Orientals. The man bought half a pound of cotto salami, paid the clerk and thanked him, and walked out.

''Acculturation,'' McGregor chuckled. His gaze sharpened, as if coming into focus. ''Hmm—seems to me you could do something with that. Suppose you had an alien race, now, just coming into contact with technologically superior Terrans—''

The resulting conversation had the deli clerk listening, popeyed, from behind his counter and Pete frantically scribbling notes. He barely remembered to look at his watch. ''It's half past ten,'' he said. ''We'd better get back, in case they're early today.''

The *Astonishing* editor got up (to the clerk's obvious disappointment), but was not a man easily derailed from his train of thought. ''All very well,'' he said as they walked back toward the post office, ''but what about the attitude of the aliens' priests? No matter how much Terran gadgets eased life for their people, wouldn't they see them as black magic? And how would that affect their society?''

''You could take different approaches to that,'' Pete said. ''The priest might even be right, for their special set of circumstances.''

''So they might. My God, there's no one right answer! What I want to see is a good, solid, internally consistent story that carries its underlying assumptions—whatever those are—as far as they can go.''

A couple of people were already waiting by the post office boxes, and several more came in after Pete and McGregor. ''They can't *all* be writers,'' Pete whispered behind his hand.

The editor rolled his eyes. ''You'd be amazed.''

At five after eleven a mailman with a fat bag and a jingling ring full of keys pushed through the small crowd and began filling the boxes. McGregor nudged Pete in the ribs, but he had also seen the envelopes going into number 148.

Pete looked round, wondering which (if any) of the men near him was the mysterious Mark Gordian. Surely not the bald little man in overalls; he looked as though he didn't read anything, let alone write. The fellow who looked like a doctor was more likely, or the muscular man wearing a loud tie.

He got a lesson on how much such speculation was worth when the person who opened the box proved to be a freckled, redheaded woman with glasses. She might have been a couple of years younger than he was, and looked comfortably casual in a rust-colored blouse and green pedalpushers.

McGregor chuckled beside him. ''I suppose there's no reason Gordian can't be married.''

''Nothing wrong with his taste, certainly,'' Pete agreed. He was taken aback all the same; he had used so much energy thinking about Mark Gordian the

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writer and Mark Gordian the enigma that Mark Gordian the person was outside his reckoning.

The woman paid no attention to him or McGregor. They followed her outside. She was opening the mail. One envelope plainly had a check in it; that went into her purse. After she opened another one, she said, "Oh, shit," crumpled up the sheet of paper inside, and threw it away. She did not seem angry, merely irritated; it was how a man would swear. Pete blinked.

Her car was parked a couple of spaces down from his Chevy. He frowned a little; she drove a cheap, ugly Volkswagen Bug. Having spent several months getting shot at by Germans, he did not care for the idea of buying automobiles from them.

She was unlocking the car door when he called, "Excuse me, are you Mrs. Gordian?"

For a second she did not react. Then she looked up in surprise. "I don't think I know you," she said, "but yes, I'm Miss Gordian." Pete felt stupid for not noticing she wore no ring, and only a little better because McGregor had missed it too.

The editor nodded to her in apology. He said, "You are related to Mark Gordian, aren't you?"

Her eyes narrowed. Pete thought she was going to drive away without answering, and got ready to dive into his car after her. Instead, though, she began to ask, "Who are—" She stopped. "You're James McGregor." It sounded like an accusation.

"Yes." He indicated Pete. "This is Peter Lundquist."

Her eyebrows shot up. "Why, so it is!" she exclaimed. It was as if she recognized him, and he was sure he had never seen her before. She hesitated again. "Why are you looking for Mark Gordian?"

Pete gave it to her in one word: " 'Reactions.' "

He could see it hit home. "Oh," she said, and kicked at the sidewalk. "Oh, shit." This time it sounded like resignation. "You were already working on it?"

His heart fluttered inside his chest. He forced himself to steadiness. "Yes."

One corner of her mouth quirked upward. "In a manner of speaking. I *am* Mark Gordian."

Pete had never seen the *Astonishing* editor with a foolish expression on his face, but suspected he bore a similar one on his own. McGregor's rally was a visible thing. "Fair enough, I suppose," he said. "There's E. Mayne Hull, after all, and C.L. Moore, and I understand Andre Norton is a woman too. Pleased to meet you, 'Mark.' "

She was still studying the two of them. "I'm not nearly sure I'm pleased to meet you. Who else knows you're here?" It was a sharp challenge; Pete thought her close to bolting again.

"My wife, of course," the editor said, and Pete echoed him. McGregor added, "There's a detective back in New York who's interested in the typewriter you use."

"I daresay he would be." She chuckled without much humor. "No one else? Not the FBI or the CIA?"

Pete spread his hands. "What would we have to show them? They'd laugh themselves sick at us Buck Rogers types. And besides," he added with

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characteristic independence, "what business is it of theirs, anyway?"

"Yes, you would be one to say that, wouldn't you?" Again he had the feeling she knew a good deal about him. She nodded slowly, as if coming to a decision. "All right, follow me home if you like. If anyone is, you're entitled to an explanation." She did not wait for an answer, but stooped to get into the Volkswagen. Its raucous air-cooled engine roared to life.

About ten minutes later she pulled into the driveway of a freshly built tract house; the front lawn still had the half-threadbare look that tender new grass gives. Pete parked his Chevrolet across the street. She was locking her car while he and McGregor walked over.

She waved at the house. "Isn't it splendid? I've only been in about four months. Eleven thousand five hundred dollars and a four-and-a-half percent loan."

"Everything is too expensive these days," Pete said sympathetically.

She turned red and made a peculiar strangled noise that perplexed him until he saw she was trying not to laugh. "Never mind," she said. "Care for some lunch? I'm no great cook, but sandwiches are easy, and there's beer in the refrigerator."

"Sold," McGregor said at once. Pete nodded too.

"Come on, then."

For a reason Pete had trouble naming, the inside of her house disappointed him. It was pleasant enough, with Early American furniture, Raphael prints on the walls, and a number of well-filled bookcases—nothing out of the ordinary. Then he realized that was the problem. He had expected something strange, and did not know what to make of this blatant normalcy.

She led him and McGregor into the kitchen, slapped ham, dill pickle, and mustard on rye bread, used a churchkey to open three cans of Burgermeister. For a few minutes they were all busy eating. "That was good," Pete said, wiping his mouth. "Thanks, uh—your name isn't really Mark, is it?"

She smiled. "It's Michelle, as a matter of fact."

Almost at the same time, the two men got out their cigarettes and looked round for an ashtray. They did not see one. Michelle Gordian's smile disappeared. "I'd rather you didn't smoke in the house," she said, a trifle sharply. McGregor shrugged and put his pack away. So, reluctantly, did Pete; his nicotine habit was much stronger than the editor's.

Michelle put the few dishes in the sink, then said, "Why don't we go back into the living room? It's more comfortable there."

She waved them to the couch, sat down herself in a rocking chair facing them. She came to the point with a directness Pete was not used to in a woman: "Just what is it you think I am?"

He had to try twice before he got the words out: "A time-traveler." Speculating about the impossible was much easier than proposing it—that implied belief.

"Why?" She effortlessly controlled the conversation; for once even McGregor did not seem eager to break in. As much as anything else, that helped

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make Pete take the preposterous idea seriously.

He plowed ahead, outlining the strangenesses he and the *Astonishing* editor had found. As he spoke, he knew how absurd he had to sound. He waited for Michelle to burst into laughter. But instead she was leaning forward in the rocker, following him intently. He thought of her for the first time as an attractive woman; interest brought her features to life.

When he had stumbled to a halt, she was silent for most of a minute. As had been true outside the post office, though, once she made up her mind she went with it all the way. "You're right, of course," she said briskly.

McGregor had been gathering himself while Pete was talking. "I'd like to see more proof than a peculiar typewriter and a story that corresponds too well to an outline," he said. "I've been burned before. And forgive me, but nothing here looks the least bit, ah, extratemporal. That goes for what I take to be your study, too, from what I saw of it from the kitchen."

"I'm not that careless," Michelle said, "even if I obviously wasn't careful enough. I have neighbors and friends who visit me; what would they make of a disk drive or a VCR?"

Nonsense words and letters, Pete thought. McGregor's snort said he agreed with that judgment. He shook his head with sarcastic mock sadness. "So, of course, you have nothing to show us."

Michelle Gordian's eyes sparked angrily. "I didn't say that," she snapped. She rummaged in her purse, took out a thin white plastic rectangle about the size of a driver's license, fiddled with it for a moment, and tossed it to her guests. "Go ahead—it's on. Just punch the numbers and functions and signs."

There was an inch-long strip of silvery stuff at the top of the card, with an angular dark gray zero at the right edge. Pete pressed the 7, and almost dropped the card when, silently and without any fuss, the matching number took the zero's place. McGregor leaned over and punched the radical sign. The 7 disappeared in turn, to be instantly replaced by 2.6457513.

"That, the editor said softly, "is the most astounding thing I have ever seen in my life."

Pete hardly heard him. He had used desktop electric calculators before, bulky machines half as big as a typewriter; was used to the whir of their motors, the ratcheting thunk of turning gears and cams, the wait for everything to finish in a multidigit multiplication. But here for the asking, at the press not even of a button, was 2.6457513. He had met the future, and he was in love.

When Michelle held out her hand for the incredible little device, he did not want to give it back. All he could think of to say was, "If you're used to machines like this, how can you stand living in 1953?"

McGregor, as was his way, carried that thought a step further: "How many centuries in the future are you from?"

One of her carroty eyebrows quirked upwards. "I'm sorry to disappoint you, but only about thirty-five years." When the two men exclaimed in disbelief, she said, "Think of this, then: what would the best aeronautical engineer in the world have made of an F-86 jet fighter in 1918? The more technology grows,

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the more it can grow. You both know that."

"Yes, but I never had my nose rubbed in it like this before," McGregor muttered.

Pete did not look at it that way. The idea of the future had drawn him long before he began writing about it. Now he had held a piece of it in his hand, had touched the warm palm and fingers of it with his own.

He had to know more. "What else can you show us?" he breathed. "What were those things you named, a 'VCR' and and a, uh, 'ish driver'? You must have them here, or you wouldn't have mentioned them."

"Disk drive," she corrected absently. "Yes, I have them. Whether you should see them or not—well, having come this far, I suppose you deserve to know the rest. Come on out to the garage with me."

She led them through the kitchen and service porch. As they walked down the steps into the back yard, she locked the door behind them. "Why bother?" Pete said. "We aren't going to be gone all that long, are we?"

She look surprised, then sheepish. "Force of habit. Something else I brought with me from the 1980's, I'm afraid."

McGregor cleared his throat. "Which brings up another point. Pete asked how you live here; I'm more interested in why. And why so secretly? With what you know, why not give the United States the help we need against the Reds?"

Something changed in her face. She was younger than Pete, years younger than the editor, but living through her life in the future (My God—she wouldn't even be born yet! Pete thought) had left her more streetwise, more cynical than both of them together. His misgivings stirred again.

She said bleakly, "Why do you think the government deserves that kind of edge?"

"Why don't you?" McGregor demanded after a short, stunned pause. The hostile edge was back in his voice, and Pete did not blame him.

Michelle was unabashed. "For one thing, *Watergate* wasn't exactly fiction. All I did was change some names. Do you want to know who President Cavanaugh really is?" She paused for dramatic effect, then told them.

McGregor winced. "I will be damned," Pete said.

She continued inexorably, "Does the name Klaus Barbie mean anything to either of you?"

"The Butcher of Lyon," Pete exclaimed. "I went through there not long after the Nazis left. What about him?"

"He's living in South America now, because he was a resource to our intelligence and we spirited him away from the French. Just about thirty years from now, he'll finally get captured and we'll get around to apologizing to France."

Pete started to say, "I don't believe it," but the words stuck in his throat.

"Shall I go on?" Michelle asked McGregor. "Or will you believe I have some reason for doing things like I am?"

"You have an unpleasant way of making your points," he said, but took the argument no further.

She unlocked the garage door, swung it up, turned on the light, and closed it behind the three of them. The front third

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of the garage held the same sort of stuff Pete's did: a couple of trash cans, a lawn mower, some gardening tools and hand tools, a pile of boxes filled with miscellaneous junk. The rest was walled off. A door had been cut in the wall; a stout deadbolt gleamed above the knob.

"This is where I do my real work," she said as she unbolted and unlocked it.

She reached for a light switch just to the side of the door. Pete was not sure what to expect—probably something like the inside of a flying saucer. It wasn't like that. The general impressions reminded him of his own working area: office furniture, lots of books and records. There was an amenity he wished he had thought of for himself—a small refrigerator—in one corner.

The more he looked, though, the stranger things got. The television set was no model he had seen before, and he could not identify the small box full of knobs and buttons attached to it. The radio, record player, and speakers were similarly recognizable but not familiar, and seemed somehow naked out by themselves without a cabinet.

And the gadget on the desk had a keyboard, but if a typewriter had been its mother, she had been unfaithful with a TV set. Wires led to a couple of other unfamiliar machines—no, wait, there was paper in one of them. "No wonder your paper looks like that!" Pete said. "You've got little side-strips for the holes to mesh with the sprockets of the electrical printer, and then you just peel them off. How clever!"

"That was the hardest thing to install," she remarked. "I don't want to say much about how I travel, but I can't bring anything back with me that I can't carry. These days I mostly stay here, anyway, unless I need something I can only get uptime. Happens I like it here."

Pete walked over to the desk. There was a magazine on it, next to the keyboard-*cum*-screen. He did not recognize the title, or the emblem prominently displayed on the cover: a stylized rabbit's head in a bow tie. "Gala 33rd Anniversary Issue!" the magazine proclaimed. The date (seeing that gave him chills) let him make a quick subtraction.

"It's almost ready to begin." The connection with his own time was cheering, in a way. Then he noticed something else. "This costs *five dollars?*" he said in horror.

"It's not as awful as it sounds," Michelle reassured him. "In terms of 1953 money, it's somewhere between a dollar and a dollar and a half."

He frowned. Not even the postwar inflation had been as bad as that. Some things in the future looked to be mixed blessings after all.

He picked up the magazine. "May I?"

"Go ahead," she said. There was something in her voice he could not quite read. She kept her face carefully blank as she went on, "In some ways it will probably interest you more than it does me."

The first few pages were mostly ads. The quality of the color reproduction surpassed anything 1953 could offer. Pete gaped at the lines of the cars. They were the most blatantly different element, though fashions had also changed, women's hairstyles were new, and mus-

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taches and beards were common on men.

The magazine fell open naturally at the center. A very pretty girl smiled out at Pete. "Ah, I see what you meant; it's like *Esquire*," he said, and opened the foldout.

He closed it in a hurry, scarlet to the roots of his hair. "Where did you get this, this pornography?" he stammered.

He turned even redder when he saw how hard she was trying not to laugh at him. "By my standards, it isn't pornography; in fact, it's very mild, compared to some others," she said gently. "And I bought it at the same place I got my little calculator—the Rexall's at the corner of Vermont and Gardena Boulevard."

"You bought it yourself? You didn't have a man get it for you? I don't believe it. How could you show your face anywhere afterwards?"

"Women do a lot of things in my time that they can't do here-and-now." She eyed him with disconcerting directness, smiled so that her lips parted very slightly. Did that mean what he thought it did? He was not sure he wanted to know. He had never seriously looked at another woman since he married Katherine, but there was no denying he felt drawn to Michelle Gordian now. He could not tell where his interest in her for her origin stopped and his interest in her as a person—and as a woman—began.

He was grateful when she changed the subject, and suspected her to be aware of it. She said, "Anyhow, the pictures weren't the reason I bought the magazine. It has a Clarke story in it that I want to use."

For a moment, all that did was to convince Pete that the publication wasn't obscene, at least in its own context: he could not imagine Arthur Clarke publishing in anything that was. Then the full meaning of her words hit him. "You're saying you've plagiarized all your work, then?" he asked coldly. "So that's why you came back here—to make an easy living off what other people have done." His liking for her flickered and blew out.

"It certainly looks that way," McGregor put in. Where exotic technology had lured Pete, with editor's instinct he had been drawn to the bookshelves. Most of the volumes there were pocket books. Some of the writers' names were familiar, others not. The books were shelved alphabetically by author's last name; Pete's glance flicked to the L's. He was startled to see how much he had done—would have done? —will have done? He gave up on the right verb form.

In any case, McGregor was holding several books in his hand. He showed one to Pete. "You'll notice it's called *Neutron Star*," he said. "It also has 'At the Core' and 'The Handicapped' in it. Here's another one: *The Hugo Winners, Volume V*, with 'Not So You'd Notice.' I can go on for a while, if you like."

He looked at Michelle Gordian as at some particularly unpleasant insect, an expression Pete understood completely. He had always reckoned thieves of other people's work beneath contempt; that the authors of the stories stolen here could have no chance to prove these words their own, only made it worse.

Pete could not even bring himself to

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respect the way Michelle stood up to the scorn he and McGregor directed at her. "Don't you want to hear my reason for doing what I'm doing?" she asked.

"Does it matter?" Pete ground out. He felt ashamed of his thoughts of a few minutes before.

"It's obvious anyway," McGregor said. "It's one of the oldest cliches in science fiction—the time traveler using special knowledge to get rich. I never thought I'd see anyone actually do it, that's all."

" 'Get rich'?" Michelle echoed. It was her turn to flush now, but from anger rather than embarrassment. "Not likely, at three cents a word and down. If money were what I wanted, there are easier ways than spending so much time in front of my word processor." Seeing their uncomprehending looks, she jabbed a thumb at the mutant typewriter.

Pete thought of his own troubles making ends meet, but her expostulation did nothing to move McGregor. "What then?" the editor snapped. "Look at the name you've built for yourself here-and-now. Who are you up in your own time?"

He plainly thought the question rhetorical, but she answered it. "An up-and-coming SF author, if you must know. You've been picking books off the shelves; why don't you get mine out?" There were four of them, three novels and a collection of stories, published, Pete noticed, under her own name. She said, "You can see I don't have to steal everything I do. That's come in handy, because some of what I've sold wouldn't be publishable in a science fiction magazine in the 1980's."

Pete pointed to the magazine with the rabbit on the cover. "After seeing *that*, I'd think you could get anything into print."

She smiled. "In that sense, you can, pretty much. But not everything I've written myself is science *fiction*,if you see what I mean."

"Oh." Pete and McGregor looked at each other. The writer asked in a low voice, "Which ones are real?"

"To hell with that." McGregor made an impatient gesture. He peered at Michelle over the top of his glasses. "You're saying you have some reason besides the strictly personal for doing what you're doing."

Relief showed on her face. "Yes, I do."

"It had better be a good one."

"I think it is."

The *Astonishing* editor waited, but she said nothing more. Finally he barked, "Well?"

"Think it through for yourself," she said. Nothing could have been better calculated to engage his interest. "You too, Pete," she urged. "You must have read a fair number of the stories I've had published—I won't call them mine if that offends you. What do they have in common?"

Not much, was Pete's first thought. They were too diverse—and no wonder, if they actually came from many different pens.

But McGregor saw what she was driving at. He was more used than Pete to considering a number of stories together. He said slowly, "If I had to pick any one thing, it would be the way your characters attack problems. They all have a knack for applying knowledge logically."

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"Thanks," she said. "That's one of the main ideas I've been trying to get across." She turned to Pete, asked with seeming irrelevance, "You have school-age kids, don't you?"

"A couple of boys," he nodded. "Why?"

"How are they learning to read?"

He made a sour face. "About how you'd guess—this current idiocy of pictures and 'looking at the shape of the whole word,' whatever that means. It doesn't matter. When Carl turned four, I bought an old phonics reader at a secondhand bookstore and taught him myself, the right way; I did the same for his brother a year later. They're both near the top of their classes now."

"I'm sure they are. But what about the children whose parents didn't bother? How well are they going to do when they come across an unfamiliar word? You're a good SF writer—extrapolate. What happens when those kids grow up? What happens when some of them become teachers and try to teach *their* sons and daughters to read?"

Pete thought about that, and did not like the answer he came up with. "You're telling us that's how it's going to be?"

"I'm afraid I am. You can watch out for something called 'new math,' too, which is just as delightful as reading through pictures."

"Thirty-odd years isn't that long a time," McGregor protested. "When the Roman Empire fell in the west, it took generations for the decline in literacy to become as widespread as you're implying. And we're starting at a much higher level than the Romans ever reached."

"True enough," Michelle said, "but then, the Romans were carrying on as best they could, trying to preserve what they had even with the barbarians at the gates."

She stopped there, letting the two men follow her train of thought for themselves. "You mean we don't?" Pete said. His fist clenched; the notion that the United states—having surmounted the Depression and World War II, put western Europe back on its feet, and contained the Reds in Korea—that they could suffer a loss of will was enough to infurate him.

As was so often true, James McGregor asked the question that needed asking. "What went—er, goes—wrong?"

"My hindsight isn't long enough to be sure," Michelle said, "but I can put my finger on a couple of things. One is education, as I said. Another is the hangover from the war in Vietnam."

"In where?" the editor said, but Pete's memory jogged back to his thoughts when he was about to read "Reactions." He exclaimed, "Oh, my God! *Tet Offensive!*"

McGregor stared from one of them to the other. "You're not telling me that one's based on fact?" he demanded of Michelle. At her nod, he gave a rueful laugh. He said, "You know, when you sent it to me, I almost bounced it because it seemed too unlikely for the readers to believe. The only things that saved it were the gadgetry on the one hand and the fact that it was internally self-consistent on the other. No wonder, I guess." He was still shaking his head.

"No wonder at all," Michelle said. "That war is one of the reasons a mag-

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azine can cost five dollars. There wasn't —won't be—enough money to pay for guns and butter both, so the printing presses tried to make up the difference."

"That always happens," Pete said.

"Yes, but I think it was the least of the damage," Michelle replied. "What is it Heinlein says?—it doesn't matter if a hamburger costs ten dollars as long as there's plenty of hamburger. The harm done to the country's institutions was worse."

"The riots and marches and such?" Pete asked; they had only been sketched in as background to the story, but they formed a constant counterpoint to the fighting that occupied center stage.

"Those are just the outward signs of what I mean," Michelle said. "To this day I'm not sure whether the war was right or wrong in itself, but it was certainly botched. People got very cynical about everything the government did—Watergate helped there too—and a lot of them automatically opposed the government or thought it was stupid when it tried to do anything at all.

"And with contempt for government went contempt for organization and standards of every sort. That aided and abetted the failure of education, I fear. And naturally, with the emphasis on the importance of the individual, anything that didn't produce immediate, obvious benefits had hard sledding. Even the space program had rough going—once weather satellites and communications satellites were in place, people took them for granted and didn't think about all the R & D it took to get them up in the first place. What can I tell you? The interest of the country just swung away from science and technology. There's no prettier way to put it than that."

"That can't be strictly true," Pete protested. "What about all these things?" He waved at the television, the contraption wired to it, the—what had she called it?—word processor.

She pointed at them one at a time in turn, saying, "Made in Taiwan, made in Japan—nobody in the United States manufactures videocasette recorders—we can't compete—made in Japan . . . the microcomputer is American-built, but the Japanese models are just as good and getting better—and cheaper."

Seeing their stricken expressions, she went on gently, "It's not all bad, up when I come from. Blacks—no, I'm sorry, Negroes is the polite word now—and women have many more opportunities that here-and-now, and a lot take advantage of them. Many people who would die or be crippled today can be saved."

" 'Heart Transplant' will come true, then?" McGregor asked.

"Oh, yes, but it's just the most dramatic one of a whole range of new techniques. . . . What else? Well, we're still holding the line against the Russians. I expect we will, a while longer. That's not a bad thing; they're smoother then than then are now, but no nicer."

"All very interesting, I'm sure," the editor said, "but it still doesn't answer the question we've had all along: why *are* you here?"

"I thought I was explaining that," she said. "I'm trying to change the future, of course." Her voice took on a fresh urgency, as if she were a lawyer trying to convince two magistrates of the justice of her case. "We missed

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coming so much further than we did by so little. The moon program petered out—''

That drew a grunt from McGregor and sent a wave of anguish through Pete. He did not want to believe it, but it fit horridly well with everything else Michelle had told them.

He pulled his attention back to what she was saying: ''Compared to my time, education, interest, and—maybe most important—purpose are still strong here-and-now. I'm just trying to nudge things along a little bit, to get across the idea that the best way to solve a problem is to apply knowledge to it, as you said, Mr. McGregor. That's true both of my own stories and of the ones I've taken from other writers.''

''And you've also slipped some of your special knowledge into them,'' the editor said.

''Of course. An amazing number of the people who read SF are engineers and scientists themselves; that's more true now that it will be in my time. If they pick up a notion or two from one of my near-future pieces, and act on them now instead—you see what I'm driving at, I think. I've done my best to describe hardware and techniques as precisely as I could.''

''Using science fiction to save the world, eh?'' McGregor said. ''Much as I hate to say it, isn't that a trifle naive?''

''If ideas don't do the trick, what will?'' Michelle retorted. The *Astonishing* editor grunted again.

A considerable silence fell before Pete nerved himself to ask, ''Any luck?''

''I still have hope,'' was all she said. ''Do you really want to find out more than that?''

''No, I suppose not,'' he said, and wondered if he meant it. He decided he did. Knowing what lay ahead was too much like losing his free will. He shuddered at the burden Michelle Gordian had taken on herself.

McGregor must have been thinking along the same lines, for he said to her, ''What can I do to help?''

''The best thing would be to forget that this whole visit ever happened,'' she answered. ''For God's sake, don't be any easier on my stories because of it. If they aren't worth reading, nobody'll care—or even find out—what's in them.''

His grin was wolfish. ''You needn't worry about that. If I start publishing stories that aren't worth reading, the magazine goes under and I either starve or have to start making an honest living for myself.''

She made a face at him. ''Fair enough.'' Stepping past Pete, she opened the door that led out to the mundane world of 1953.

''Excuse me.'' When they were walking back to the house, Pete took out his cigarettes, gratefully sucked in the harsh smoke. Seeing Michelle's expression of distaste, he quoted,

''Tobacco is a dirty weed.
It satisfies no normal need.
It makes you thin, it makes you lean,
It takes the hair right off your bean.
It's the worst darn stuff I've ever seen. I like it.''

''The more fool you,'' she told him, but she waited until he had had enough and crushed the butt under his heel.

Once they were inside, McGregor said feelingly, ''I hope no one will argue with me when I say that calls for another

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drink. A very dry Martini, if you have the makings."

"I'll wave the vermouth at it as I toss in the cherry," she promised. "Anything for you, Pete?"

"I wouldn't turn down another beer."

She handed it to him, made the editor's drink and a gin and tonic for herself. She watched McGregor take a cautious sip. "Is that all right?"

"I'll let you know when my eyes uncross," he wheezed, but the glass rapidly emptied.

After he was done, he seemed impatient to be gone. Pete thought he wanted to talk privately about the amazing day, but he said very little on the drive back to the motel. At last Pete said, "What is it, Jim? I've never seen you knock back a drink so fast, and I've never heard you so quiet."

"You didn't pay a lot of attention to the books back there, did you?"

"No, not really. Why?"

"I wish I hadn't." There was a long pause. "One of them was called *The James McGregor Memorial Anthology*."

"*The*—Oh, Jim!"

"Yeah. It's good to know I'll be well thought of, I suppose."

Pete could only admire the editor's composure. Even a kidnapper facing the gas chamber could hope his sentence would be commuted; this one, though indefinite, was certain. Pete hesitated, then asked, "Did you, uh, look at the copyright date?"

"The hell I did!" McGregor said, echoing Pete's feelings exactly: "That's a chunk of the future I have no desire to know more about, thank you very much."

"What will you do now?"

"What would you expect? Get a flight back to New York and go on with *Astonishing*, of course. There's certainly nothing I'd rather do." He fished his wallet out of his pocket, pawed through it. "Where's that Trans World reservation and ticket number? Oh, here it is—MIchigan 8141. I'll have to give them a call when we get back to our digs."

They were pulling into the motel parking lot when Pete said reflectively, "Things aren't going to be as simple—or as good—up ahead as I'd hoped, from what Michelle says."

The editor laughed at him. "Remember what de Camp put in the mouth of one of his characters? Something to the effect that a truthful traveler coming back from heaven would report its charm greatly overrated."

"Well, maybe so. Still, I'm not sorry she's trying to bend the future a bit. Imagine reaching the moon and then cutting back on space exploration. It's crazy!"

"You get no arguments from me. If I thought you were wrong, I'd be calling the FBI now, not TWA." Pete turned off the ignition. They got out of the car. McGregor went on, "Let's get ourselves packed. Our wives will be missing us."

"So they will," Pete agreed, but he was disturbed to find himself thinking as much of Michelle Gordian as of Katherine.

The big propellors began to spin, slowly at first but then blurring toward invisibility. Even behind the steel and glass of the terminal, the roar of the

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radial engines sank into a man's bones. The airliner rolled west along the runway. It sprang into the air; the landing-gear folded up into its belly.

Wishing McGregor well, Pete walked back through the terminal toward the parking lot off Century Boulevard. He passed the row of telephones in which the editor had search in vain for "Mark" Gordian's number. He hesitated, took out a dime, and went over to an unused phone.

He dialed with a rising sense of trepidation. He heard three rings, four, five; he was about to hang up, more relieved than not, when his call got answered. "Hello?"

"Michelle?"

"Yes, this is Michelle Gordian. Who's calling, please?" She sounded out of breath; she had probably come running in from outside, he thought, to pick up the phone.

"This is Pete Lundquist, Michelle."

"How did you get my number?" she demanded, both anger and alarm in her voice.

"I saw it on your telephone yesterday," he said apologetically. "I have a good memory for such things."

"Oh." She seemed mollified, but only a little. "What is it you want, then?"

Not altogether sure of the answer to that himself, he decided to take her literally. "I've been thinking of the conversation we had yesterday, and—"

"—you decided you really want to know what's going to happen after all," she interrupted. Again he heard her full of the cynicism that appeared to come so easily in the future. She said, "You were smarter before, I promise you."

"I believe it," he said quickly. "It's just that—well, there I was in a room full of machines from your time, and every one of them turned off! I felt like Tantalus and the bunch of grapes. All I was going to ask was to see them work just once. Anything more than that I'll cheerfully stay ignorant of."

The line was silent so long that he said, "Hello?"

"I'm here," she answered. "Well, why not? The worst part of living back here is the loneliness. My neighbors are friendly, but we have so little in common with one another, and I don't dare show them what I have in the garage. Either they wouldn't understand or they'd expose me. You're enough different that—Tell you what. I was just going out to the garage to work on a story of my own when you called, and that'll probably keep me busy through the afternoon. Why don't you come over around nine tonight? Come straight out to the garage; I'll probably still be in there anyhow."

"Nine o'clock," he repeated. "I'll be there." He hung up. Everything is okay, he told himself fiercely; I'm only going to have a look at marvels I won't have the chance to see again. But the interior dialogue would not stop: in that case, why are your palms so sweaty? His response was to ignore it.

As things worked out, he was late; never having gone directly to Michelle Gordian's house, he lost his way a couple of times, and streetlights were few and far between. When he finally did arrive, he thought she had changed her mind and was going to meet him in the house: behind drawn drapes, the lights were on. But no one came to the door

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when he rang the bell. He went back around the house to the garage.

Michelle was at the word processor when he entered her sanctum. She waved without turning around, saying, "With you in a couple of minutes. I'm working through a tough part, and it's taking longer than I thought it would. Sorry."

He didn't answer. He was not sure she could hear him: a record was spinning on the turntable, and she was listening to it through a pair of earphones. Instead, he walked over to the green-glowing screen in front of which she was sitting. As he came up, she muttered an obscenity under her breath, punched a couple of keys. Pete stared: on the screen, a paragraph had disappeared. A letter at a time, a new version began taking shape.

"I want this gadget!" he cried in honest envy, thinking of scissors and paste and snowdrifts of crumpled paper in his wastebasket.

She could hear—he saw her lips quirk. "I think that'll do it," she said. She hit different buttons. A light on the small rectangular box next to the screen came on; the box started chuckling to itself. "Storing what I've written on the floppy disk," she explained, taking off the earphones. "I'll print it out tomorrow."

He must have looked like a small boy who had just lost his candy. "Oh, you really were interested in the machines, then?" she said.

He nodded, but felt his face grow hot at her ironic tone.

She waited until the disk drive had fallen silent, typed out a new command. Pete jumped as the printer started purring like a large, mechanical cat. Paper rose at an astonishing rate. "How fast does it type?" he asked.

"About three hundred words a minute, I think," she said indifferently.

He peered into its works, exclaimed, "It's printing left-to-right and right-to-left!"

"Why not? It's quicker that way. It's not as if it knows what it's doing, or anything like that. It's just a tool, like an automobile."

"Yes, but I'm used to automobiles, and I'm not used th-this." He changed the subject. "Was the record you had on from your time or mine?"

"Mine, or at least you would say so. Actually, it's pretty old. It's from, uh"—she looked at the back of the cardboard sleeve— "1978."

"That's new enough for me," he laughed. He took the record cover, turned it over. The design on the front was the same as that on the other side: a stylized street lined with geometric shapes running like a purple-pink bend sinister across a black background. " 'Robin Trower. Caravan to Midnight,' " he read. "May I hear it?"

He was surprised when she hesitated. "I don't know if I ought to do this to you," she said. "It's only rock and roll, but I like it."

"Only what?"

"Never mind. Popular music."

"It's okay," he reassured her. "I like Bach and Vivaldi, sure, but I can listen to Perry Como too."

For some reason, that seemed to fluster her more. "It's not—like Perry Como."

"Is Robin Trower a girl singer, then, like Rosemary Cloonie? That's all right."

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"He's an Englishman who plays electric guitar," Michelle said flatly.

"Oh." If she thought she was going to put him off, she was wrong. The idea of futuristic technology married to music only intrigued him more. "Sounds fascinating."

His determination made her throw her hands in the air. "All right. Don't say you weren't warned." She set the earphones on his head. They were padded with red sponge rubber, lighter and more comfortable than the ones radiomen had used during the war. "You might as well listen to the first side first," she said, flipping the record in her hands. He saw it flex, and guessed it was unbreakable. He wished some of the hard shellac platters he'd once owned had been.

Then the needle—housed in a more elaborate cartridge than current phonographs employed—was dropping. Pete heard it hiss on the opening grooves of the record, listened to the syncopated thump of drums. He just had time to realize that the sound was marvelously clear before the snarling whine of the guitar made him jump straight up. Then everything was happening at once — guitar, drums, and a singer who attacked his song like a man going after a snake with an axe.

Michelle had the volume up very high. Pete felt as though he were listening to a jet engine warming up in stereophonic sound (something he only knew from a few big movie theaters). "It's not like Perry Como at all," he said. He could hardly hear himself talk. He saw Michelle's lips move, but made nothing of her reply.

He had almost snatched the earphones off at the first stunning jolt, but he soon realized that this Robin Trower knew exactly what he was doing and had his unruly instrument under control. The music was so strange he could not tell whether he liked it or not, but he recognized talent when he heard it.

The song—it was called "My Love (Burning Love)," he saw on the sleeve—came to an appropriately fiery end. In the brief moment of silence between tracks, Michelle said, "The next one's quieter."

"Jesus, I hope so." He lifted off the earphones. "Too strong for my blood, I think," he said, adding reflectively, "That's what I'd call real zorch."

He was obscurely pleased that he had managed to puzzle her. "Real what?"

"It's what the young hepcats say when they mean something like 'strange and marvelous' " he explained. "There's a bop-talking San Francisco disc jockey named Red Blanchard who's their hero up where I live. Bunch of crazy kids, the kind who dye their hair green or wear purple lipstick or red eyebrow pencil—what's so funny?"

"Nothing, really," she got out after a while. "*Plus ça change, plus c'est la même chose*, that's all." She studied him. "What would you like now?"

He hesitated but played safe. "If this is your record player, what can your TV do?"

She shrugged, turned it on. The picture filled the screen much more quickly than on the sets with which he was familiar, and it was very sharp, but the difference seemed of degree rather than of kind. He was disappointed. He must have shown it, for she said, "Remember, it can only give back the signal it's

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getting. However—" She went over to her desk, took out a plastic case a little larger than a fat paperback. "A videocasette," she said, loading it into the box attached to the television.

"Magnetic tape?" Pete asked, and at her startled nod he said smugly, "They were talking about it in *Time* last month."

"That'll teach me to show off. I ought to tell you this is old too. I've seen it a million times, but I never mind watching it again."

He did not answer. He was staring at the words flowing across the starry background: "A long time ago, in a galaxy far, far away . . ." The story background being laid out mattered much less to him than the fact that the lettering was glowing gold. There had been talk of color TV for years, but unexpectedly seeing one was something else again.

Michelle brought her desk chair over next to his. He felt about seventeen, at the movies with a date. The headlong action of the space opera he was watching only added to the feeling; it reminded him of a film made by splicing several months' worth of serials together.

Halfway through, he burst out, "My Lord, that's Alec Guinness!" The actor's snow-white beard brought home the inexorable passage of time even more starkly than the calculator card Michelle carried; Pete wondered what the years would do to *him*.

"What do you think?" she asked when the tape was done.

"The Hollywood word is 'colossal,' isn't it? The color, the trick photography—unbelievable. I almost hate to quibble about how thin the plot is."

"A man of taste," she sighed. "It's so much fun, though, I don't want to admit that you're right."

He glanced down at his watch. "It's almost one," he said in disbelief. "I ought to be getting back to the motel." He rose and stretched. "Thank you for a really marvelous time."

The hackneyed formality of the phrase made the evening seem more like a date than ever. Without much conscious thought, Pete put his arms around Michelle to try for a goodnight kiss.

He got more than he bargained for. Her body molded itself to his; he could feel the soft firmness of her breasts against his chest. And the kiss, instead of the prim peck he had expected, left delighted thunder in his brain when he finally came up for air.

Michelle pulled back, just a little. "The hardest thing for me living back here, I think, is having a relationship," she said.

"A wh—a what?" he stammered, still half stunned by the yielding warmth of her under his hands—but not too stunned to respond, another part of him noted clinically.

"Most men here-and-now treat a woman as if she were a child," Michelle said, "and even with the ones who might not, how can I get close? I have too much to hide. But you already know my secret, and you've been looking forward for years. It's a damned attractive combination." She swayed toward him again.

The directness of her approach, though, did more to put him off than to arouse him; he was used to the game

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being played another way. "Easy there," he said, disengaging.

"It was pure intellectual curiosity, then, that brought you back here tonight?" she said with stinging sarcasm. "Tell me that was all, but wipe the lipstick off first."

He could still taste it on his lips. "I can't tell you that," he admitted, knowing miserably that he was going to regret whatever happened next, either way.

An army buddy had once told him, "The hardest thing in the world is turning it down when it's there for the taking." "How do you know?" he'd asked —"Ever done it?" "Me? Hell, no—and don't that prove my point?" His buddy would not have had a second thought here.

His buddy, though, had not spent his entire adulthood building a life with one woman. Though it took all Pete's will, he turned toward the door of Michelle's study.

Her voice pursued him. "You run, and you don't even know what you're missing."

The promise in that almost stopped him again. From everything he had seen, her era was much looser than his. There were things he had never dared ask of Katherine. . . . But then, why had Michelle Gordian chosen to live in 1953 if not for its virtues, such as they were?

"I know what I have," he said quietly, and walked into the night. ■

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(continued from page 30)

Walter nodded at him pleasantly. "Good afternoon."

"Morning. It's always morning here." Saint Peter had the huge book in front of him, and now he was opening it and peering at one of the great pages. "Walter Johnson, isn't it?"

"That's right." Walter stood at ease. He was quite ready to enter the Gates of Heaven, and sure it would happen. He didn't feel 'e boasting—that was alien to his nature—but he did feel confident about his record in that book. He could review every act of his whole life (funny how his memory had suddenly become perfect) and could not recall a single mean, unkind, or selfish act in over seventy years. And he had been quietly and devotedly religious, all his life.

Saint Peter was closing the book, slowly, his face sad.

"Can I come in now?" said Walter. Suddenly he felt a little uneasy.

"I'm afraid not." Saint Peter shook his head, and reached across to a massive lever that stood by the pearly gate. "It's the . . . other place for you, I'm afraid."

"What! It can't be!" Walter showed more animation than ever in life. "You must have made a mistake. I've lived a blameless existence, never done anything wrong at all."

"True. But in an earlier incarnation you were Attila the Hun." Saint Peter pulled the lever, and the road beneath Walter's feet shimmered and turned transparent.

Walter felt himself slipping through, and looked down at the furnace of Hell's Gate far beneath. "Attila the Hun!" he screamed. "But I didn't do what he did. I don't approve of what he did! I don't even *know* what he did! There's been a mistake."

Saint Peter leaned forward, watching the blackening figure flying rapidly downward toward the smoky, incandescent glow.

"No, there's no mistake," he called after Walter. "It's just the new accounting system—we switched to it a month ago, when our management consultants, Beezley & Bubb, explained how it will cut down on paperwork."

He leaned farther, shouting down into the void. His voice could hardly be heard above the roar of the flames.

"Now *all* book entries are done on a *cumulative* basis." ■

● To get the attention of a large animal, be it an elephant or a bureaucracy, it helps to know what part of it feels pain. Be very sure, though, that you want its full attention.

Kelvin Throop

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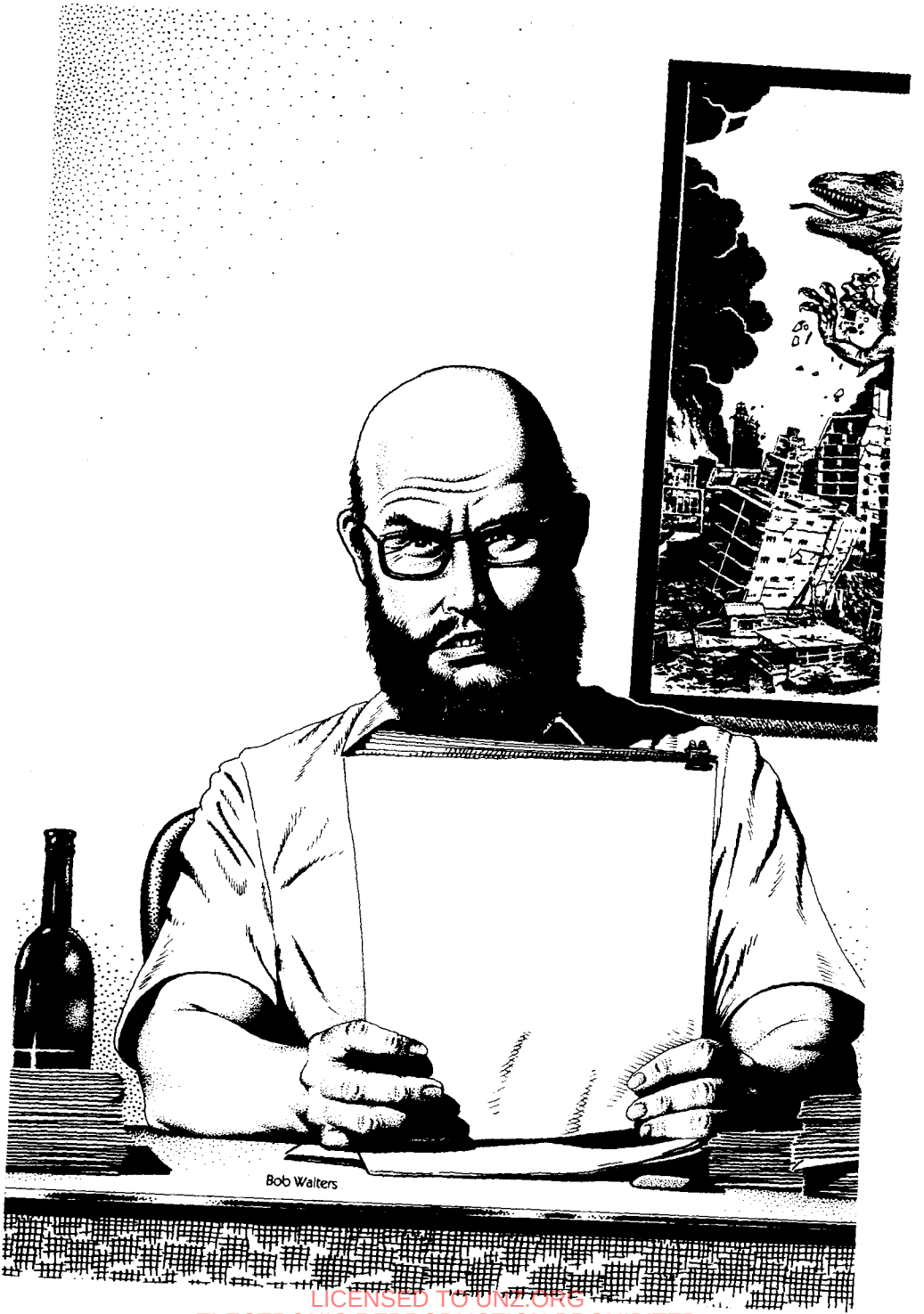

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Hayford Peirce

PROGRESS

Progress consists of replacing
the Old with the New.
But the Old may have secondary
uses which get lost in the shuffle. . . .

From a small but luxurious suite of offices high in the ultramodern Universal Gimcrack Building, Jeffrey Alkine directed the publication of the most successful science fiction magazine history had ever known. Far below the bronzed thermoglaze walls the raucous antheap activity of Lexington Avenue was a mere soothing murmur, hardly at the edge of perception. Grateful stockholders provided him with a corner office, an AutoFilPil dispenser, an executive washroom, and two comely secretaries. A carefully nurtured stable of downtrodden and submissive writers produced a steady flow of crude raw material susceptible to cutting by The Master into small, polished gems. The employee's pension fund had recently made several shrewd investments on The Street and its portfolio was burgeoning.

And yet, that Thursday morning, Jeffery Alkine was not an altogether contented man. For one thing—his most deeply guarded secret—he was conservative, even reactionary, by nature. After three years in the new offices of *Preposterous Science Fiction* his stomach still churned at the daily ordeal of using the L-Ervator. Firedrill on the grav-chute was even more unnerving. His AutoFilPil dispenser remained unused. He sighed wistfully as he settled to his desk and rang for coffee: for lost innocence, perhaps, for three-piece suits, for old-fashioned express elevators.

His coffee arrived, along with his second bone of discontent: the morning's mail. Jeffrey Alkine glared resentfully at the stack. Its bulk was turgid, uncompromising.

Words. Words, and more words.

Writers, he thought, always writers. If only a magazine could find a way to do without writers. . . .

He swallowed his coffee, set the cup aside, and reached firmly for the stack. He was, he told himself, a highly paid, highly competent, tough-minded professional. He enjoyed the rough and tumble of the publishing game, the pitched battles with distributors, the anguished moans of starving writers, the driving of his competition to the wall, the crisp glossy perfection of each new issue. If only. . . .

But no. He picked up the first hefty

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sheaf of manuscript. It was from one of his minor but regular contributors, R.J. Delgardo, DDS, a retired credit-dentist now living in Manhattan, Kansas.

His lip slightly curled, Jeffrey Alkine skimmed the covering letter, automatically disregarding the wretched jocularity, the abject toadying, the grandiose braggadocio to which writers are so curiously susceptible. A few thousand ill-considered words eventually revealed that R.J. Delgardo, DDS, was enclosing not one but *three* short stories, each of 7,490 words.

Without reading further, Jeffrey Alkine set the letter down. He raised his eyes as if seeking divine guidance. Who would have believed it? The sly, almost feral cunning of the typical writer was sometimes beyond compare. He shook his head in wonderment.

In these hideous days of rampant, uncontrollable inflation, *Preposterous* was now being forced to pay 33 cents a word for short stories, 23 cents a word for longer works. By definition—Jeffery Alkine's definition—a short story became a novelette at 7,500 words.

Still half-stunned by the credit-dentist's sly treachery, Jeffery Alkine reached for his desk calculator. The computation was complex but eventually he had the figures before him:

For a short story of 7,490 words he would be forced to disgorge the unreasonable and extortionate sum of $224.70.

For a novelette of 7,500 words he would be forced to relinquish the still not inconsiderable sum of $150.00.

A difference of $74.70!

For all three stories, a total of $224.10!

Why, for that amount of money he could easily enjoy a modest expense-account luncheon at *Chez Gauche*!

How the fiendish dentist must have sweat to cut his wretched manuscripts by the necessary ten words!

How the miserable tooth-grinder would pay for his impertinence!

A smile playing across his lips, Jeffery Alkine sat back to contemplate an awful retribution. The phones were disconnected, the doors locked. The morning passed. Both secretaries scurried to keep the flow of coffee uninterrupted. Cigarette butts piled up and smoldered in the jade ashtray.

Suddenly he sat up with a jerk. He had it! The means of retribution was ludicrously simple: *he would accept, and pay for, not three stories, but one!*

Ha!

With rekindled vigor, Jeffery Alkine pulled the manuscripts toward him. Now for the really difficult task: to choose *which* story to keep, which *two* to reject. . . .

It was as he had feared: all three stories were hacked (he snickered unpleasantly) from the same bolt of cloth. Three more episodes in the never-ending succession of moderately well-received stories involving the Eskimo-Persian industrial troubleshooter and pragmatic inventor, the universally-competent Omar Kayak.

A groan escaped his lips. What madness had possessed him that far-off day to purchase his first Omar Kayak story? What inner demon had prompted him to suggest a second, and then a third? The Kayak stories were now approaching their centenary; how was it possible to distinguish one from another?

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Oh for an Ancient Mariner, he cried, to chooseth one of three.

He leafed rapidly through the three works. All were typical, all were topical, all contained the same mindless mishmash of formula plotting, all were written to the same level of incompetence. All would be moderately esteemed by the readers of *Preposterous*.

In one story Omar Kayak employed a team of whales to rescue a powerless nuclear submarine trapped beneath the South Pole.

In another he foiled a plot by Arab radicals to cripple the industrial world by turning all of the Middle East's oil reserves into petroleum jelly, or vaseline.

In the third he discovered a psionic ability hitherto undreamed of: telekinetic mixing of polka-dot paint.

Jeffery Alkine shook his head in reluctant admiration. Say what you would about the retired credit-dentist, the man *was* awesomely creative, his grasp of science unchallengeable, his ingenuity unparalleled. It was almost a pity that his lapse into overbearing greed and short-sighted chicanery must be so sternly rebuked. . . .

But he was still, he reflected, no nearer the solution of the maddeningly infuriating puzzle he had set himself: which story to accept, which two to reject. Qualitatively they appeared the same; quantitatively they were *exactly* the same, a precise 7,490 words apiece. It was not even possible to choose the shortest, and hence the cheapest.

His thoughts darted hither and yon, his vast accumulation of learning was reviewed, sorted, classified, considered, rejected. His stomach sloshed with coffee. The hour grew late, his secretaries departed. His thoughts turned to creativity, to extrapolation: where no solution existed he would *invent* one!

It was no go.

Only one possibility suggested itself: that he carefully read all three and then make a decision on the basis of the inherent quality of each story as measured against the others.

Jeffery Alkine snorted and with a shaky hand reached for a third pack of cigarettes. Why, to do such a thing was to be run out of the Editor's Guild, his name forevermore an epithet! Every professor of creative writing would—

His eyes opened wide. The cigarette fell unheeded to the carpet.

Creative writing. School. Teachers, Tests. Grades . . . Grades! By God, he had it!

Dazzled by the inner vision which had suddenly sprung full-blown, crystalline, flawless, he fell back in his chair, weak with emotion.

Dimly-remembered sniggering behind the school; oblique remarks from certain teachers; prurient speculation with his teenage friends; all now came back to him. . . . And most wonderful of all: it was true, it was *true!*

Jeffery Alkine rose to his feet. In one intuitive leap of genius he, Jeffery Alkine, had found the philosopher's stone for which editors had searched in vain for centuries. His name would echo down through the ages, timeless, immortal, one with Socrates and Leonardo, one with Bowdler and Mrs. Grundy.

But now for the acid test.

Carefully he gathered up the three manuscripts. Each was firmly held to-

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gether by sturdy paper clips. He strode purposefully from his office, out through the winding corridors to the central landing.

He became conscious that his heart was beating rapidly, that his palms were sweaty. In a few moments the experiment would be accomplished, in a few seconds he would have immortalized himself!

He looked about the deserted landing.

Ha!

He pulled open the nearest door. A broom closet. Well then, the next. A storage area. The next. An electrical room. The next. Ladies room. Gents. He was running now, searching frantically, doors slamming, footbeats echoing.

An office.

Another office.

An L-Ervator, another, three more.

The emergency grav-chute. Another grav-chute.

Wild-eyed, he jerked his head about. He counted the doors. He had made a complete tour of the landing. None was feasible. Was it possible that . . . ?

Bafflement gave way to dread.

Slowly—as slowly as Jeffery Alkine himself slumped against a wall and sagged limply to the carpeted floor—slowly the full awful truth stood revealed in all its hideous nakedness.

There was—

—he sobbed rackingly—

—no—

—no staircase to throw the manuscripts down. . . . ■

● *A Cure for Jet Lag:* Jet lag is one of the main curses of modern high-speed travel. Fly from New York to Tokyo, or from San Francisco to London, and your brain arrives six days after your body and five days after your luggage. And yet it is well known that north-south flights produce no such effects. One can fly from Montreal to Quito, or from Washington to Buenes Aires, and feel the same as usual. It is the east-west and west-east trips that produce the dreaded jet lag.

Once this truth is recognized, we realize that a slight revision of airline flight patterns will solve the whole problem. All long distance flights will henceforth pass over the North Pole. The aircraft will fly due north from its origin until it reaches the pole, then fly due south along a suitable meridian of longitude until it arrives at its destination. Since only north-south flying is involved, jet lag effects will be eliminated.

Charles Sheffield

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A RETROSPECTIVE: THE FILMS OF 1984; OR JUST POSSIBLY 1985. OR MAYBE 5363 (A. D.): WHO KNOWS FOR SURE?

Laurence M. Janifer

Well, the crop of sf movies, this year, was about average—which means that I have got to take great care in typing the word "crop," in order not to sully the page with my hysteria. Let's (as the Bishop said to the Actress—or was that the other way around?) get right into things:

PORGY AND BLAST was surely the most unusual premise of the year. The notion that George Gershwin was a cradle-changeling and an alien being of some sort, who was murdered just in time to prevent his destroying the Earth with combinations of sound beyond even the reach of Boy George or someone, did allow the producers (Universal Pictures, of course—a subsidiary of Warner Communications like everyone else) to cut expenses by using grainy clips from RHAPSODY IN BLUE or whatever its name was. But some of the money saved ought to have gone toward decent effects: Gershwin in his alien form is only a fairly logy rattlesnake, lacking shock value. Neil Diamond, however, is his usual self, whatever that is, as Al Jolson (the white Black Power hero). The human Gershwin is played by Robert Alda (in the grainy bits) and his son Alan, though not *sympathetically enough. Shelley Winters is Sophie Tucker; Meryl Streep, in what seems* to be a bid for the gay audience, is Ira Gershwin; and Clint Eastwood is Florenz Ziegfield. This casting doesn't really work (though the scene in which Ziegfield faces down Gershwin, holding a pistol loaded only with rolled-up music paper, does thrill the audience), and—to mention the score—there is no excuse, alien form or no, for the segue (as Alda turns into that snake) from I GOT RHYTHM to SHAKE, RATTLE AND ROLL.

ILLEGAL ALIEN. James Bridges (THE CHINA SYNDROME, SILKWOOD) directed; Mario Puzo (THE GODFATHER, SUPERMEN I and II) wrote the script. Expected to be the blockbuster of the year, this far-fetched story about an extraterrestrial who speaks only Spanish (Leonard Nimoy as Pancho, the Alien) and his friendship with a sympathetic human (Meryl Streep, in costumes that glitter a good deal more than her performance) as *Orgasm, the Earth Girl is just too incredible, and much too much cut to formula.* Casting John Houseman as Pancho's antagonist ("We communicate the old-*fashioned* way: in English!") somehow didn't quite work. It was nice to find out, though, after all this time, that Nimoy's pointy ears are real, and the human-shaped ones appliances.

2020: STILL MORE; and after Bowman's death in 2001, and his resurrection in 2010, it was hard to imagine a sequel. (I mean: even the Bible, after its Resurrection, can only pull some loose ends together and wipe out the universe.) But Clarke's novel (screenplay by Isaac Asimov; the screenplay has just been published as his 4,000th book) broke new ground—which the movie follows faithfully, barring a single exception—when the Mysterious Slab gives all human beings the gift of perfect eyesight. Antonioni's direction seems a trifle fuzzy, but Dudley Moore's performance as the Slab leaves little to be desired. The sole difference between novel and film is that, in the film, the Slab gives humanity, instead of perfect eyesight, the Three Laws of Robotics—a negligible change.

STAR ROCK VIII gained no real freshness from Sylvester Stallone's lead role as the interstellar boxer who trains the youthful Obi-Wan Kenobi (played by Julie Andrews). The scope of the picture, however, is as usual immense: the scene in which Stallone has to punch his way out of a black hole (*James Earl Jones once more*) to save his fiancée Boobie (Julie Andrews) is breathtaking. So is his encounter with the Spirit of the Elliptical Galaxies (Julie Andrews). Directed neatly by Blake Edwards.

I find I scarcely have room even to mention THING 2 (a race of intelligent carrots is menaced by a visitor from Earth—well-played by Mel Blanc), STAR TREK VI (the *Enterprise*—played by Orson Welles—is stolen by the Mira Ceti Tabernacle Choir, and recovered only at the last minute by Kirk and Spock and Scott, or Kock and Spott and Stirk, or something), or even DUNG (mystic adventures on a world of manure).

Better luck next year.

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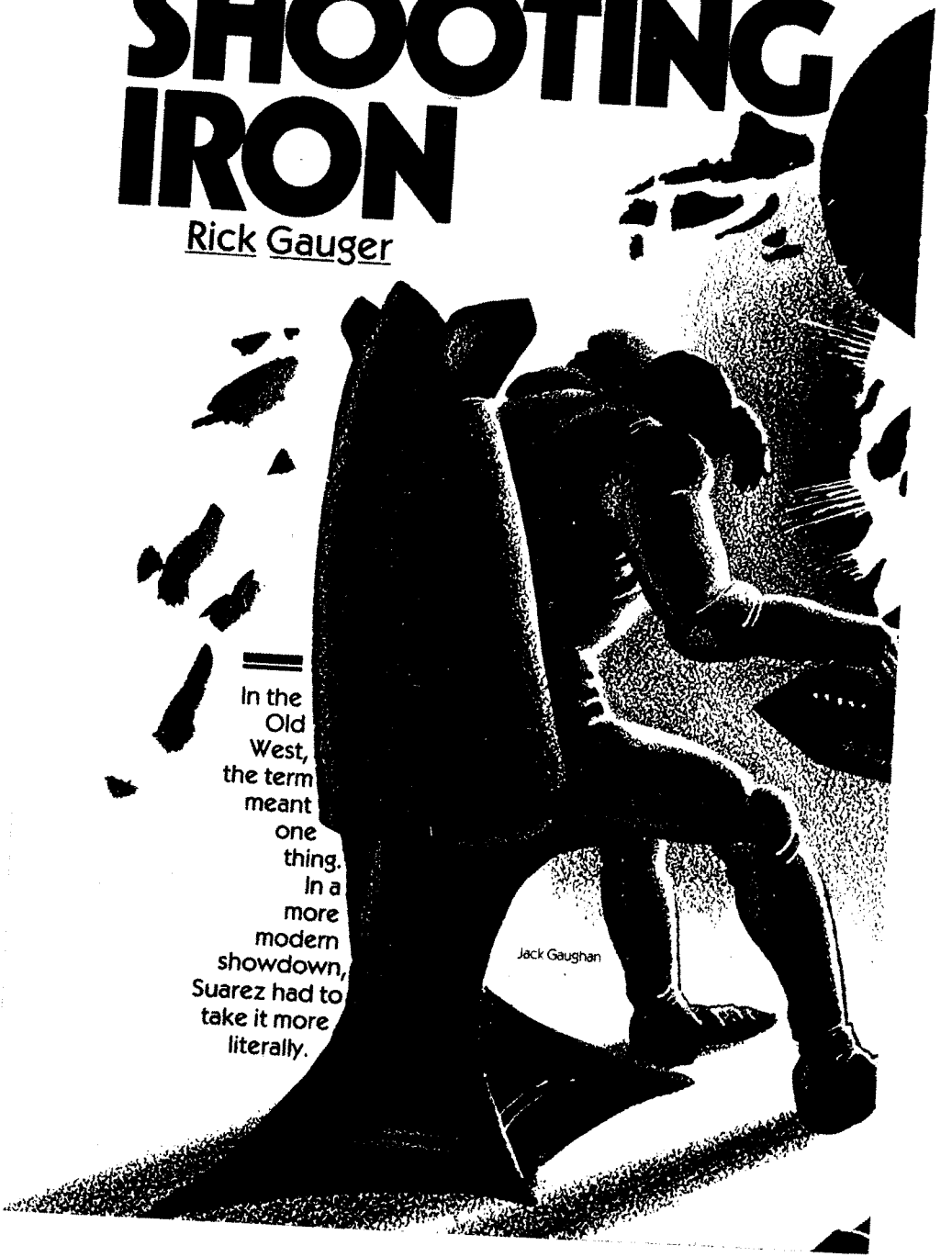
SHOOTING IRON

Rick Gauger



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I was finishing my stint as pilot of the asteroid tug *Arnold Schwartzeneggar*. I had just arrived at Earth orbit after hauling an iron siderite all the way in from the asteroid belt. Two years of boredom, solitude, and celibacy. So, after parking the asteroid at the smelter of the Denali Orbital Industrial Complex, I was ready for some time off.

So there I was, floating around *Schwartzeneggar*'s zero-g comfort & hygiene compartment, making myself gorgeous preparatory to some well-deserved debauchery amidst the fleshpots of Denali, when I noticed what the announcer on the TV was saying.

"Terrorists hijacked the Denali tourist shuttle, and used it to sieze the newly-completed Denali SunBeamer early this morning," she said. "They are holding the crew of the SunBeamer and the shuttle hostage. They have threatened to use the SunBeamer's giant solar-powered laser to destroy population and industrial centers on Earth and in space unless their demands are met. The terrorists say they are members of the Baptist P.L.O. an underground religious—"

Gee whiz, I thought to myself, sipping complacently at my tequila collins. Those Baplos, or whatever they were, really had the world by the balls. I had been following the news of the construction of the SunBeamer during the long months of my Earthward approach. Sip. Good collins, my first in two years.

The purpose of the SunBeamer superlaser is to provide power to various rocket-powered spacecraft by beaming energy at them while they are en route to destinations in the Earth-Moon system. It has an automated aiming system accurate enough to track accelerating targets at distances of thousands of kilometers. The beam could be flicked from target to target as fast as a child could point a flashlight. All the terrorists had to do was sit back and type instructions into a computer. But, no prob, Bob. The military and/or the cops would take care of it before things went too far. Sip.

I was complacently thinking these thoughts and anointing my underarms with Cattleman ("Smell like All Outdoors!") when the intercom fweeped at me.

It was the military and/or the cops. A heavy man with eyebrows, but no neck, and a uniform, looked me over suspiciously from the intercome screen.

"You are Cosmonaut-Pilot Suarez?"

"Uh, yessir. I mean, yeah. What can I do for you?"

"I am Colonel-General Golem, rotating commander of U.N. armed forces for security here at Denali."

I looked at him closely. Sip. "You can't fool me. You aren't rotating."

He grunted sourly. "Is meaning that now is my turn to be commander of international security forces this month."

"Oh, yeah. Congratulations." Sip.

"Thank you. You are hereby informed that you and your spacecraft have been requisitioned for war emergency, declared by United Nations at thirteen hundred hours today. You will prepare to move *Arnold Schwartzeneggar* from Denali Industrial Complex to SunBeamer—"

I lost my grip on my drink and it floated away in the air. "Wait just a goddamn minute, kernelgeneral, you've got the wrong—"

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"You have been drafted for duration of U.N. war emergency, Suarez," the general said, not missing a beat. "Failure to comply with orders of local military authority is punishable by a fine of five hundred thousand dollars for each occurance, and (he was leafing through a thick, official-looking book), imprisonment for not less than—"

"Butbutbut."

"Is not necessary to apologize for ignorance, Suarez. A party will be arriving at your airlock soon with cargo to take to Baplos at SunBeamer. You will receive further instructions then." He blanked the screen before I could say anything else.

I jumped into my clothes and, leaving my drink behind, I flew up the spacecraft's central passageway to the control deck to see for myself. Through *Schwartzeneggar*'s big front window I could see the lumpy metal wall of the Denali Complex on one side, and the dazzling white and blue ball of Earth on the other. Nothing unusual, except there was a hell of a lot less traffic than usual. I also noticed a team of spacehands busily moving a boarding tube into place against my main airlock. It wasn't long before I heard a loud kissing noise coming up the passageway from aft, which meant I had visitors in the airlock.

I plummeted down the passageway, landing with a thump on the plate that covered the forward end of *Schwartzeneggar*'s mass-driver tube. Everybody and his dog and auntie were milling around in my airlock. A party of technicians trooped past me—into *my* spacecraft—without so much as a hello. Spacehands wrestled a bulky metal container through the hatch. Behind everyone came General Golem and a tall, silent stranger.

The stranger nodded at me. He was an impressive guy: tall, rangy, broad-shouldered, with a hard, chiselled face. I always wanted to look like that.

"What's this?" I said, indicating the metal container, which the spacehands were lashing against the bulkhead of *Schwartzeneggar*'s airlock.

The stranger squinted at the container and then he squinted at me. He was chewing on a small, unlit cigar, which he removed from his mouth before saying in a quiet, level voice: "It's the payoff. For the Baplos." Not bothering to conceal the contempt on his face, he replaced the cigar in his mouth.

General Golem was floating in the airlock at the parade-rest position. "Is not payoff," he said. "Is consideration, for cooperation of Baplos." He cleared his throat. "Cosmonaut-pilot Suarez, I introduce Cosmonaut-pilot Clinton Greenberg. He will assist you to maneuver *Arnold Schwartzeneggar* to SunBeamer."

"Pleased to meet you, Suarez," said Greenberg, low and steady. "Just call me Clint."

"Uh, hi, Clint" I said, and turned back to the general. "Look here, Golem, I'm not taking part in any ransom-delivery operations. This spacecraft belongs to Mexican Space Enterprises and I'm signed for it. Besides, it's dangerous and I haven't joined any army yet. Furthermore—"

Golem turned to face me, his eyes automatically inspecting me for lint and unbuttoned pockets. "I wish you to pilot spacecraft on this mission, not because you have good qualification as pilot, but

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because you are most familiar with operation of asteroid tug *Arnold Schwartzeneggar*. You will have assistance of Cosmonaut-Captain Greenberg. But if you prefer to be arrested and tried for noncompliance with U.N. emergency directives, police are waiting outside."

While Golem was telling me this, I noticed that one of the men who had come aboard with the work party had a portable video camera. He was aiming it at the spacehands as they lashed the container to the deck. He seemed to be listening intently to instructions coming through his earphones.

"What's he?" I said, interrupting Golem, "the goddamn Wide World of Sports?"

"The Baplos wish to have the entire transfer operation on camera," the general said. "My technicians are now making arrangements so that terrorists can maintain surveillance inside this spacecraft, by using your video intercom system."

"What?!" I choked. "You mean they can see and hear everything we're doing?"

"That is correct," Golem said, "Both here and in the traffic control tower of Denali. The Baplos are taking this means of ensuring that we do not use *Schwartzeneggar* as means of making surprise attack."

"I'll be dipped in sh—"

"Also, please refrain from customary language, Suarez. Through intercom, we are on network news. Whole world is watching." He straightened his uniform tunic and ran the palm of his hand over the fuzz on his head.

I subsided into incoherent sputtering.

The cameraman said, "The Baplos say they're satisfied now." He took the camera from his eye and left through the boarding tube. The technicians trooped past me again on their way out of the spacecraft. The spacehands finished what they were doing and left, too.

General Golem cleared his throat and fastened his little ball bearing eyes on me. "Your orders: With assistance of Cosmonaut-Captain Greenberg, you will move *Schwartzeneggar* to the SunBeamer and deliver container. The Baplos know that *Schwartzeneggar*'s main propulsion is magnetic mass-driver that fires slugs of asteroidal iron. You will use only attitude control jets to move the spacecraft, not mass-driver. Under no circumstances will you point *Schwartzeneggar*'s mass-driver tube at SunBeamer. The Baplos fear that we may use it as a weapon against them. They say, if threatening moves are made, they will shoot solar laser. Shoot *Schwartzeneggar,* shoot Denali Habitat, shoot cities on ground. Kill many innocent people. They are watching us always." He glanced at the intercom camera on the airlock bulkhead. "Therefore, Suarez, no heroic tricks."

"You can rely on me, General," I said. I have always been a reliable coward.

The general left. I closed the airlock and floated up the passageway to the control deck. When I arrived, Greenberg was already there, tapping away at the flight computer keyboard and watching the news on TV.

I sat down in the pilot's chair and helped him work up a course program that would take us to the SunBeamer on attitude jets alone. *Schwartzeneggar*

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could get there faster if I could've used the mass-driver propulsion system, and there were several of the 100-kilogram iron slugs from the asteroid still in the system. I decided not to bring it up, not with the Baplos listening and watching over the intercom cameras that were mounted on every bulkhead on the ship.

Soon the TV news showed an outside picture of *Schwartzeneggar* slowly pulling away from Denali. The spacecraft, with its mass-driver tube sticking out behind, looked like a knitting needle stuck into a tennis ball. The acceleration was so mild I could hardly feel it.

It seemed to take a long time to get anywhere. I fidgeted. Through the front window there was a panoramic view of the stars and the rolling Earth. From the TV came the tinny voices of the newscasters explaining the situation over and over again. I saw myself on the screen, fidgeting. I learned that the ransom consisted of the most costly, valuable thing the Baplos could demand: electronic microcircuits manufactured in the zero-g factories of the Denali L5 Complex. Chips for the latest video games like Freeway Pileup, Beiruit-Toot, Elephant Kong, and Pacporn. Worth millions, and negotiable anywhere.

Greenberg showed an amazing lack of desire for small talk. He just sat, keeping his slitted eyes fixed on the TV screen. The unlit cheroot shifted from one corner of his mouth to the other, his hands motionless except when he checked his watch. After a half-hour he gestured at the TV screen.

"Look at that," he said.

The picture showed a helicopter view of a large, modern building in the middle of a vast parking lot. Hundreds of miniscule human figures were running frantically away from the building and leaping into the cars in the parking lot. A large cylindrical tank in the rear of the building seemed to have a dazzling red light playing on it. Suddenly the tank blew up in a mushroom of yellow steam. The running people and the cars were swamped in a tidal wave of foam.

"Foam? What the hell is this, Greenberg?"

"It's the Coors brewery in Denver," Greenberg said through gritted teeth. "Those atrocity-committing sonsabitches."

I thought the Baplos would say something through the intercom hookup, tell Greenberg to shut up or something, but they didn't. Maybe they were too busy ranting at various government authorities through the TV news and threatening to shoot more targets on the ground to hurry things up.

Another hour dragged by. The SunBeamer appeared as a tiny dot amid the stars ahead. Finally, Greenberg announced that he had to go to the john, and got up and left. He returned after a few minutes.

"You probably better go too, Suarez," he said.

"Go where?"

"To the head," he said irritatedly. "We may be too busy later on. Go on."

Actually, I *did* have to go. I mumbled assent and rose from my chair. I bumbled down the passageway to the comfort & hygiene compartment. The plastic squeeze bulb containing the remains of my tequila collins was still there, floating against the air return grille. I grabbed it and backed into the little enclosed booth that concealed the zero-g toilet.

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I squatted there, worrying. The Baplos were killers. Sip. Would they let us go after we delivered the ransom? Sip. What had they done with the people on the tourist shuttle and the SunBeamer? And there was something fishy about the U.N.'s paying ransom. I'd never heard of their doing it before. Paying ransom to terrorists is suicide in a society as vulnerable and dependent on technology as ours is.

The Baplos had made a mistake when they blasted that beer factory. They had shown a world-wide TV audience of voters that a lot of lives were at stake. A lot more lives than mine, or Greenberg's, or the crews of the SunBeamer and the hijacked shuttle. The U.N. would make sacrifices to eliminate the problem.

Was Golem planning some deadly trick? He wasn't the kind of general who would let little things like wrecking the SunBeamer, or getting me killed, get in the way of squashing terrorists. Sip, sip, sip, gurgle. But he couldn't do anything, could he, with the Baplos watching?

This line of thinking had an effect which defeated my purpose in coming to the toilet. I reached for some paper from the dispenser at my elbow. When I pulled out a sheet, I was surprised to see that it had more on it than the usual printed GOVT SURPLUS (NASA). There was a scrawled ballpoint pen note in Greenberg's handwriting:

Have plan to wipe out the
baplos. Act natural.

If I hadn't been strapped down, I would've hit the ceiling out of pure terror. I quickly looked around. No intercom in sight. That's right; I forgot the toilet booth was the only place on *Schwartzeneggar* that wasn't under surveillance. Greenberg had noticed it right away. He was really smart. Crazy, but smart. Stifling with suspense, I yanked another sheet out of the dispenser:

several iron slugs
for massdriver still
aboard. use massdrvr
as cannon very accurate.

I wooshed with relief. Greenberg wouldn't be able to try anything crazy after all. Greenberg was mistaken. It would be easy to talk him out of it. General Golem had stated explicitly that the Baplos would be on the lookout for any effort on our part to aim the massdriver at them. The mass-driver tube pointed to the rear. The Baplos could melt *Schwartzeneggar* into slag before we could get the spacecraft turned around. Greenberg would see that. He wouldn't want to try anything that would be doomed from the start. Intending to leave, I pulled out another sheet.

have reprgrmed mssdrvr
computer to launch slgs
in reverse ie. forward
thru middle of spcecrft.

My God, the man was out of his mind! I had to stop him before the Baplos noticed anything! I ripped out another sheet:

dont forget to flush

I flushed the subversive paper and raced up the passageway to the control deck. I remembered to slow to a casual pace only just before bursting through the hatch. My eyes bugged out when I saw Greenberg had put on one of my vacuum suits.

"Now don't go getting all excited,

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Pancho," he said. "I've got the Baplos spoofed for the time being."

"You do? How?"

"While you were still down in the airlock with Golem, I slipped up here and rigged a tape loop in the intercom video recorder. The loop recorded twenty minutes of us sitting in the control cabin doing nothing. It's playing back through the intercom to the Baplos right now. They think they're seeing us 'live.' The TV networks are picking it up, too, I guess. I'm plumb sorry the tape loop shows you when you were picking your nose, but—"

"Dammit, Greenberg—"

"Say, now, I wish you'd call me Clint," he drawled in his slow, easy way.

"Dammit, Clint, what do you mean by taking risks like that? Don't you realize—I mean, if the Baplos should find out—"

"Now, now, Pancho," soothed Greenberg.

"Whatever you've got in mind, you can't do it!"

Greenberg removed the cheroot from his mouth calmly and patiently, like a man about to explain something to a dull child: "Pancho," he said, "sometimes there are things a man has just got to do."

"Huh?"

"We can't let those Baplo skunks get away with holding up the world like this. It isn't the money; it's the idea of the thing. Now come here and take a look through this."

He'd gotten the ship's telescope out of its cabinet and mounted it in its bracket on the window. It took me a second to interpret what I saw through the eyepiece. It was the SunBeamer, with the hijacked tourist shuttle docked alongside. I could see it plainly as it hung in the clear sunlight a hundred kilometers in front of *Schwartzeneggar*.

Greenberg talked in my ear: "See that little pear-shaped thing on the struts in front of the big mirror? That's the laser tube assembly. When we get closer, all you have to do is shoot it loose from the SunBeamer. You have enough experience with *Schwartzeneggar* to be able to do it. Then you and me can kill off the Baplos slow-like. They won't be able to stop us."

"What about the crews of the SunBeamer, and the shuttle?"

"Well, what I figure is, they aren't on the SunBeamer. I didn't see them when the Baplos made their broadcast, so I figure they've been locked up in the shuttle to keep them out of trouble. They'll be all right. All the Baplos are in the SunBeamer control room, where you can hit 'em." Drifting in mid-air, he hitched up his belt. "I knew you'd go for the idea, Pancho. I figure you got what it takes."

He looked at me in his manly way, his eyes calm and serious. If there had been any dirt aboard the spacecraft, he would have been drawing lines in it with a stick, like they do in the movies. I gave him a forthright, manly answer:

"You're out of your fucking mind!"

Greenberg put his cigar back into his mouth. I could tell by his squint that he was disappointed in me.

"Listen, Greenberg I mean Clint," I said. "We're not policemen or soldiers. We don't know how to do things like you're suggesting. We'd be killed.

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Thanks for books and pencils and paper, thanks for wood to build our homes and firewood to keep us cozy in them, thanks for violins and cellos and guitars, thanks for furniture and paints and paintbrushes, thanks for maple syrup and sleds, thanks for park benches and gymnasium floors, thanks for fruits and jams and jellies, thanks for shade for a Sunday afternoon nap, and a special thanks for the oxygen we breathe. Trees give us a lot. Don't take them for granted. Please be careful with fire in the forest. A tree will thank you.

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We aren't heroes. Let's just do as we're told and let General Golem handle it."

Greenberg looked at me sadly. "Well," he said, quietly, "There's one other thing." He pushed off from the window and floated across the control deck. I followed him down to the middle of the passageway, where there was a closed panel. The panel was streaked gray from two years of my elbows' brushing past it. The lettering on the panel was almost rubbed off:

NUCLEAR
SELF-DESTRUCT DEVICE

"You know what this is," Greenberg said.

I groaned, because I knew what it was. It was a fusion bomb, built into the structure of the spacecraft. All massive spacecraft, which follow high-energy trajectories toward Earth, have them. In an emergency, the spacecraft can be vaporized by remote control. A safety device, it's called.

"Where's the button that sets this off?" said Greenberg.

I groaned again. "In the traffic control tower, on Denali," I said. "I forgot about this."

"I'll bet Golem hasn't," said Greenberg. "I'll bet he's got his stubby, vodka-smelling finger on it right now. He'll wait until we're docked with the SunBeamer, then flash, blam, thank you ma'am. Then he'll get a medal for saving the world. Now what do you say?"

"You've convinced me, Greenberg," I said.

He whopped me on the back with his gauntleted hand. "Fact is," he said, "I was so sure you'd go along with the idea, I've already started letting the air out of the spacecraft. You better go get into your suit before you start to bloat up. And I wish you'd call me Clint."

When I got back up to the control deck, the SunBeamer was visible to the naked eye, a little dot moving among the stars. I clapped on my helmet and cycled an iron slug into the mass-driver. The readout said we had seven of them aboard.

Immediately the intercom screen lit up, showing an ugly young face with a shaved head and a cigarette stuck through a hole in its upper lip. "You shitheads are playing with fire," the face said. "I warned you. Say goodbye to downtown Honolulu."

"Just a minute!" I blurted, busy with *Schwartzeneggar*'s attitude controls. I had the SunBeamer dead ahead in the front window. "I got something to show you. Watch closely, now!"

I could only hope that Clint and I were clear of the passageway. I keyed EXECUTE for Clint's frontward-launch mass-driver program. Instantly I was knocked sideways by a thunderclap and a streak of orange lightning. A shower of debris followed as the last of our air chugged out through the shattered plastic window. Through the jagged hole I saw the iron slug, still glowing red from its passage through the remaining air in our spacecraft. It dwindled and disappeared, speeding toward the SunBeamer.

The ugly face glanced off-screen and panicked. "He's shot something at us!" he screamed. "Hit it with the laser! Hurry!"

I tore myself away from the show on the screen and forced my fingers to type in a maximum acceleration course that would take us in a curve toward the

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SunBeamer. To speed up our assault, I pumped another iron slug to the rear. I could only hope it wouldn't hit Denali Complex, and if it did, it wouldn't kill anybody but Golem.

Stars wheeled across the window. *Schwartzeneggar*'s computer was keeping the axis of the mass-driver aligned on the SunBeamer. A blazing point of orange fire appeared close to the SunBeamer, drifting sideways and spitting sparks.

"They've vaporized the slug," Greenberg said tensely.

"Not quite," I replied. "Only half-melted it and knocked it aside. We're so close they can't keep the beam on it long enough to vaporize it. I'm hoping they'll be so busy fending off the slugs they won't have time for us!"

"Good thinking, Pancho."

The ugly face shrieked at us out of the intercom screen: "I'll burn your eyes out!!"

I clapped my glove over my faceplate and squeezed my eyes shut. Red glare and heat as the laser beam hit *Schwartzeneggar*. Blindly, I punched for another forward slug launch. Blessed darkness again as the Baplos' beam followed the slug away from us. The SunBeamer wasn't just a dot now; it was an oval shape against the black of space.

The commo board was blinking lights like the front of a movie theater. It was the Denali Traffic Safety chief and General Golem, shouldering each other off the screen:

" . . . the hell are you doing? That slug barely missed the Complex—"

" . . . Get closer to the SunBeamer, Suarez!"

"I'd stay away from it if I were you, Pancho. You know the old boy's got his finger right on that nuclear destruct button." This last (unnecessary) advice was from Clinton Greenberg. But we had to get closer for precision shooting. The third slug, boiling off a trail of iron vapor, clipped one edge of the SunBeamer's solar mirror. I launched another one. The massive iron slug flickered past my ear and out the front window. In my panic, I kept seeing General Golem's finger on the red detonator. Roy Rogers could shoot a gun out of a man's hand, but could *Arnold Schwartzeneggaar?*

In a panic, I grabbed at this idea. I activated another screen on the instrument panel. It was the rearward-aiming sight of *Schwartzeneggar*'s mass-driver. This screen now displayed a highly magnified picture of the Denali Traffic Control. I jinked the attitude control jets until the Traffic Control antenna mast was centered in the crosshairs on the screen. I punched for a rearward pellet. *Schwartzeneggar* bolted ahead.

"Now, Pancho, aren't you getting a mite too close to the SunBeamer?" Greenberg asked me quietly.

Through the front window, I saw the fourth slug, which was incandescing white in the Baplos' laser beam, miss the SunBeamer by a hair.

"OK, now shoot the laser tube off the SunBeamer," Greenberg counseled.

"I'm trying! I'm trying!" I launched our next-to-last slug and scored a clean miss. The mass-driver just wasn't accurate enough, shooting frontward.

The SunBeamer was beginning to fill up the whole front window. I saw the wide-dished mirror, designed to focus sunlight on the largest laser tube ever

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built. The tube was held in front of the collecting mirror by three spindly struts. Around the circumference of the mirror were various shapes representing the control room, the docked shuttle, and so forth. I could see the tinted purple glass in the control room window, with the shapes of the terrorists moving around behind it. It all turned majestically against a background of cascading stars as *Schwartzeneggar* yawed across its focusing area, and inched to a painful halt right in front of the laser.

I saw Golem's face on the commo screen. I could see him reaching offscreen for the detonator button to do us in, heroic resolve written all over him. Before he could reach it, my fifth pellet arrived at Denali. I watched it on the aiming screen as it sailed right through the antenna mast on the Traffic Control Center. The mast disintegrated into a hundred cartwheeling fragments, just like one of those video games. I wished I could've seen Golem's face when *Schwartzeneggar*'s self-destruct bomb didn't go off, but of course the commo screen went blank when the antenna mast was wrecked.

But the intercom screen still showed the ugly-face Baplo terrorist. "Now you'll burn," he rasped, "—slowly!" The little aiming mirror on the end of the laser tube was only a meter away from Schwartzeneggar's front window. It swivelled and pointed at my nose. I cringed.

But Greenberg had his finger on the forward-launch button. He had all his poise back. "Go ahead," he sneered icily. "Make my day!"

The terrorist reached for his button, but Greenberg was faster. The seventh, the last, slug, flitted between me and Greenberg like a bat in the gloom. Instantly it crossed the space to the SunBeamer's control room. The tinted glass in the window burst into a sparkling cloud of purple fragments. The ugly face in the intercom screen vanished in a splatter of red. Air puffed out of the SunBeamer, bringing with it the struggling bodies of the terrorists. None of them was wearing a suit, and there was no way we could help them. I couldn't look, but it didn't seem to bother Greenberg.

"I've waited years for a chance to say that to some sonofabitch," he said.

"For God's sake, Greenberg, how did you know the slug would hit him?"

"Aw, I didn't. I was just trying to confuse him. Now, let's go let the hostages out of the shuttle."

"Never mind the hostages. We have to get in touch with Golem before he finds an alternate way to set off the nuclear destruct."

"Aw," Greenberg said. "I wouldn't worry about that right away, Pancho."

"What do you mean?"

Before answering me he reached for the intercom switch and shut off the system. He got out one of his little cigars and a wooden match and struck it on his pants leg. We were in a vacuum, so nothing happened. He threw away the match and the cigar. He looked at the ceiling for a moment. "Well, it's like this, Pancho. I, uh, sorta lied to you a little. About the bomb and all."

"What!"

"Yeah, well, Golem did have some idea about sacrificing us and the hostages to get rid of the Baplos, but the Baplos had it first. We had to disarm

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the nuclear destruct before the Baplos'd let us leave Denali. Did it myself, while you were talking to Golem down in the airlock. Baplos watching me all the time on the intercom."

"I'll kill you!" I shouted at him. "I'll kill you twice!"

"Aw, now, Pancho, there you go getting excited again," he said soothingly. "You're forgetting."

"Forgetting what, you—!"

"You're forgetting you're a hero now. Why, the whole thing was on network TV. Hell, we're going to be media celebrities. Parties, talk shows, interviews, medals, Hollywood, cash bonuses, women—"

"Women? Cash?"

"Sure. And I'll tell you what. You just remember to call me Clint, and I won't say anything about the bomb. Okay?"

He's a movie star now. I saw him advertised the other night in a picture called *A Fistful of Melody*. I think it was a musical. ■

HUMAN MOMENTS IN SCIENCE

Paul J. Nahin

Science is not, as is often thought, the odd pursuit of smart but boring automatons. In reality it is an activity that glories in the human spirit. Much of what makes science interesting is not the final result (the pure mathematical theorem, the new elementary particle conservation law, or the big breakthrough in medical knowledge), but rather it is the *drama of the people who labor behind the scenes. That* is what stirs the imagination, heats the blood, and excites the mind.

We are all familiar with some of these "behind the scenes" stories about the men and women of science (e.g., Ben Franklin's hair raising introduction to electricity via his kite and key), but there still remain many more equally dramatic episodes to inspire and instruct the young people who will be the scientists of the future.

The recently announced cataloguing of the Smithsonian Institution's holdings has already uncovered new documents revealing a few of these astonishing, new tales. What follows is a random selection of some of these long-lost, never-before-published anecdotes of science.

After being asked by a reporter in 1927 to explain time dilation in his theory of special relativity, Albert Einstein replied, "Think of it this way. If you sit on a hot stove, for even just a moment, it seems a long time. If, however, a pretty girl sits in your lap, even for an hour, it seems a short time. It's all relative. Does that help you understand it?"

The reporter thought for a moment, and then said, "No." Einstein, in his usual witty style, smiled cheerfuly and replied "That's because you're not nearly as smart as I am."

(continued on page 145)

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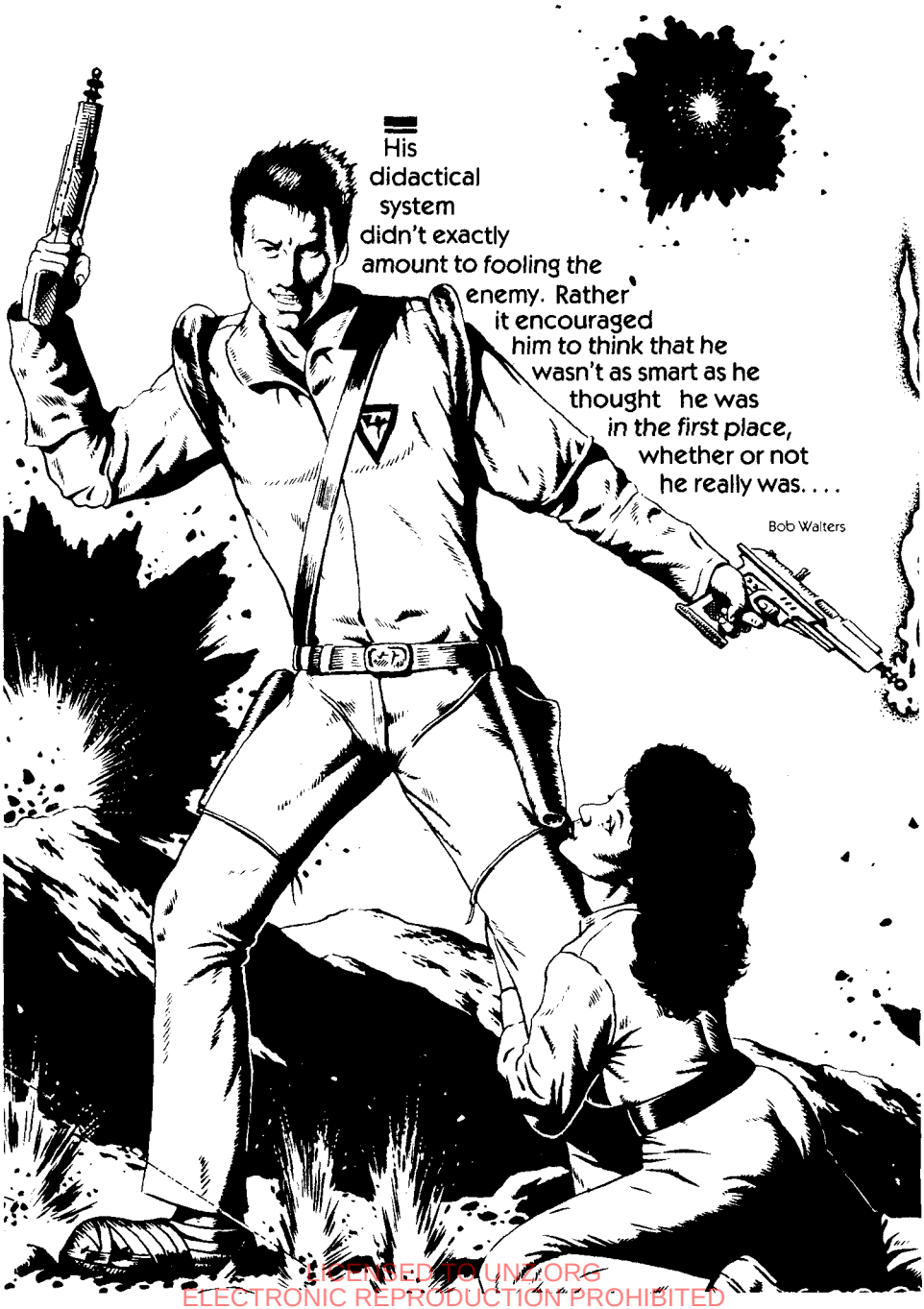
His didactical system didn't exactly amount to fooling the enemy. Rather it encouraged him to think that he wasn't as smart as he thought he was in the first place, whether or not he really was. . . .
Bob Walters

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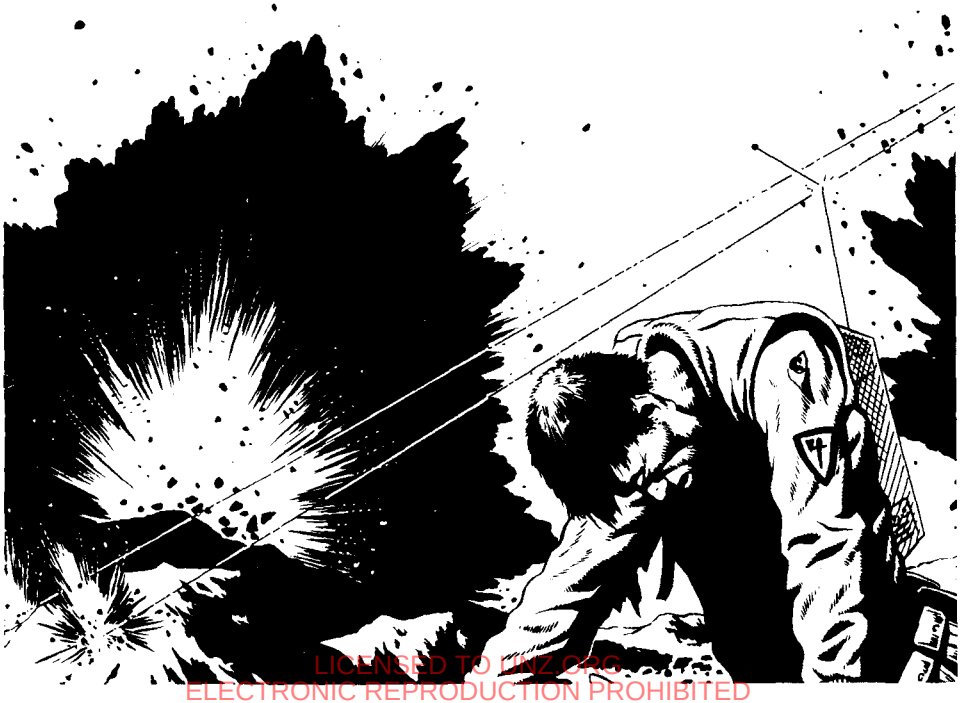
THE DIDACTICS OF MYSTIQUE

Part Two of Four

Flash Richardson*

* a.k.a. Grant Callin



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With apologies to
Gordon R. Dickson

SYNOPSIS

"The young lieutenant colonel was sober, apparently, but determined to rush upon disaster. . . ."

The lieutenant colonel in question is Cracker Graham of the Festerin' Alliance, currently disputing control of the Earth with the Foalition. The rivalry of these two groups has extended beyond Earth; otherwise this wouldn't be even marginally a science fiction story. . . .

The scene is in the lounge of a civilian spaceship on its way to the world of Poultice, where the Alliance is helping the Despotic colony of Baseballa against the Foalition-backed colony of Neubergh. Cracker, limping because the fourth toe of his left foot is half-prosthetic, sits down uninvited at the table of Bow deCastrati, Secretary to the Outworlds for the Foalition, also enroute to Poultice on the neutral ship.

Also at the table are IknowI Khan, a colonel in the Dorsal mercenaries, and his daughter IthinkI; also there is an important Despotic named Wondar the Outbred, homeward bound to Baseballa.

Cracker reveals the fact that he was formerly the head of Didactics at the Alliance Academy. He initiates a duel of words with deCastrati and ends up showing him how to make an egg stand on end; in the process of doing this, however, he splatters raw egg yolk into deCastrati's lap. Bow is furious, because he realizes something that no one else at the table—with the possible exception of the Outbred—does: namely, that Graham is not *sober, but indeed stewed to the gills.*

Just in time, IthinkI Khan pleads a headache to get Cracker to escort her away from the table. Once outside the dining room, she warns him away from Bow, and also from herself and her father, whom a wild didactician like himself can only endanger. Sadly, Graham agrees, and stumbles off to his bedroom.

Several days later, as they are driving into Baseballa from the spaceport, the vehicle in which Cracker, IKnowI, Wondar and IthinkI are traveling is attacked by guerillas. They are about to be overrun and killed when Graham, who has played dead and got control of the driver's weapon, wipes out the guerillas as they make their final charge. IthinkI is shocked by Cracker's grim combat-readiness. Presumably, she is also grateful to be alive.

In Baseballa Cracker encounters General "Rat" Trainer, his commanding officer, who had requested jungle-razer tanks and a division of crack combat troops, and is unhappy to have been sent a didactical advisor instead. Honestly, can we blame him?

Rat grudgingly admits that a suggestion of Graham's—that a new influx of Neubergh guerillas will soon be infiltrating the Baseballa upcountry—might have some merit. Cracker asks for command of a division of jungle-hardened combat troops to capture the soon-to-be-infiltrating guerillas; instead, Rat gives him a platoon of ne'er-do-wells and puts a passed-over lieutenant in command over Cracker.

That evening Graham attends a party at Wondar's, where he once more en-

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counters Bow deCastrati, and they exchange thickly veiled insults. Using a series of double- and triple-entendres so that no one else will understand, Bow lets Cracker know that he knew that Cracker was really drunk that night on board the ship, and that the bill for cleaning egg yolk off his trousers will be quite high. Graham, on the other hand, lets deCastrati know that he knew deCastrati knew that he was drunk, and furthermore that he got drunk on purpose, and good luck collecting the cleaning bill.

Later that evening, after a transcendentally psychic experience with Wondar the Outbred, Cracker is urgently requested to join the Despotics. He refuses, indicating that his future lies with the Dorsals.

*The next day Graham leaves with his troop to repulse the guerilla infiltration. In command is sullen, washed-out Lieutenant Ill Baythe*r. *Cracker, taking advantage of Baythe*r's *weak personality, talks him into using most of the troop to guard two river crossings, giving a few men to Cracker to guard the remaining twelve crossings. By using his men well, and by a combination of special features in the terrain, specially ordered equipment, outguessing the enemy at every turn, and expeditious use of 43 other instances of good luck and coincidence, Cracker captures 90 percent of the guerilla force without losing a single man. The other 10 percent escape past Lieutenant Baythe*r's *command at one of his two crossings.*

In the process of this remarkable achievement, however, Graham further damages his half-artificial fourth toe. Sitting against a tree, he cuts off his shoe and injects a shot of narco-anesthesia into the swollen toe, then falls into darkness. . . .

DXXII

Cracker Graham lay in the hospital bed and contemplated his elevated, immobilized leg. The fourth toe which was the reason for the immobilization had been throbbing again, and was now reaching the point of intolerable pain. Graham closed his eyes, breathed deeply four times, and put the pain *outside* his body. As he was finishing this, his aide Lieutenant Ardent Blondson entered the room.

"Still no sign of the doctor, sir."

"That's strange," said Graham. "The doctor said it would be no more than three days before I'd be out, and the three days are up today."

"There is something you should know, though, sir," added Blondson. "I just saw General Rat Trainer coming down the hall toward this room."

Cracker's eyes flashed around the walls, coming to rest on an unobtrusive door opposite the bed. "Ardent, I'd appreciate it if you would slip into the bathroom, there, and remain until General Trainer leaves."

Lieutenant Blondson raised his eyebrows in mild inquiry—the only way he ever allowed himself to question Graham's orders. But Cracker just continued to stare with mild eyes at the lieutenant—a negative response to the questioning. After a brief hesitation, Blondson nodded almost imperceptably and inserted himself into the small cubicle, shutting the door behind himself just as the general entered the bedroom.

Trainer stood for a moment in the

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doorway, contemplating Graham with beetled brows. Finally he allowed himself an almost imperceptable sigh and strode into the room with a brusque smile now spread across his face. He greeted Cracker with forced bonhomme: "Well, Colonel, I trust you're feeling fit this morning!"

"Yes, sir," Cracker said. "Nice of you to visit me."

"Not at all, not at all," the general said quickly, "normal procedure when one of my officers buys a piece of it." He looked at the floor for a moment. "Though I'd be remiss not to congratulate you on your strategic analysis and brilliant tactical victory." He eyed Cracker from under his thick brows.

"Actually, sir," said Graham, "I was quite lucky, for the most part. The general knows how unusual it is when events in the field parallel exactly what was planned in the War Room."

Trainer was about to agree wholeheartedly, but as he opened his mouth to speak, Graham firmly pre-empted him: "Still, I feel bad about the ten percent of the guerillas that escaped."

Trainer's face flashed anger, and his reply was forced: "As to that, colonel, I'm quite aware that Lieutenant Baythe allowed those men to escape, no matter how he tried to exonerate himself in his report. A board will convene next week to examine his competency as an officer of the Festerin' Alliance."

Rat glowered at the younger man for another moment, then cooled down. "But that's not the reason I'm here, Colonel. Though I disagree with your unorthodox methods, the fact is that you saved the Alliance some embarassment by repulsing that infiltration. Consequently I feel morally obligated to grant you a favor—mind you, I personally still wish they'd sent me a division of seasoned troops and some jungle razers, and I plan to ship you back to Earth as soon as you screw up!"

"Fair enough, sir," Cracker said. "And yes, there *is* something you can do for me." He looked calmly into the general's eyes. "Accept me as your didactical forecast officer, and set me up with an office, a small staff, and a few hundred seasoned veterans I can use as a quick-reaction force."

Trainer looked long and hard at Graham. "Very well, I suppose you've earned the right to have one outlandish request; but I can only spare you 94 men—I'm giving you the Dorsal contingent, since you seem to have struck up a rapport with Colonel Khan. Now I must be going." He turned brusquely and started out the door.

Graham stopped him with a voice louder than necessary: "Sir, there is one more thing. . . ."

Rat, red-faced with anger, turned back to glower again at Cracker. "Yes?" he said through clenched teeth.

Cracker said blandly: "Sir, I wish you'd reconsider the competency board for Lieutenant Baythe. He seems to have potential, but just lacks the confidence which comes from a sound grounding in military didactics. Perhaps if you could put him on detached duty as Library Officer for a while. . . ."

Trainer's anger turned to puzzlement. "Graham, I just don't understand you."

The young colonel allowed himself a wistful smile. "Of course not, sir. In fact, most of the time, I don't even understand myself. Sometimes it seems as

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if there's an invisible, omnipotent presence authoring strange words and thoughts I have, dictating unusual actions that somehow always seem to turn out for the better, creating improbable victories for me, and giving me larger-than-life talents." He shook his head ruefully. "Sometimes I wonder if I'm a real person at all. . . ."

The general looked hard at him for a moment, then departed the room, stomping down the hall with a still-angry tread.

But Graham was already reading a local almanac which Blondson had brought him earlier. He was engrossed when the lieutenant emerged from the bathroom. Blondson looked down the hall to make sure the general was gone, then said: "Is there anything else before I try to find the doctor, sir?"

Graham looked up from his reading. "Yes there is, Ardent. As you probably heard, I'm to have an office. I will locate here in Port Enoy; but find a building as close to the northern edge of town as possible, with a suite of rooms large enough for a staff of ten. Then find the security officer and engineering officer and have them turn the suite into a trap to catch unwanted intruders. Make it relatively easy to get into, but almost impossible to escape from. Unbreakable glass in the windows, solid steel-reinforced doors with automatically activated locks which can't be opened from inside without the keys, and so forth. And be sure to tell the engineer that this is all on the authority of General Trainer through me."

Blondson calmly looked up from the notebook in which he was scribbling, and said: "Yes, sir. I'll have that all done by tomorrow morning. Did you find what you were looking for?" He indicated the almanac with a nod of his head.

Graham closed the thick book and handed it to the aide. "Yes, thanks, Ardent; as a matter of fact, I did. Today is the beginning of the pre-monsoon, during which all of Baseballa and the southern half of Neubergh will have no rain, but three continuous weeks of cloud cover." He looked at the younger soldier. "And six nights from now is an event called Rasmussen by the locals. The three moons of Poultice line up in such a way that the planet's magnetic field—normally quite strong—is canceled out for a period of about eighteen hours." He looked out the window at gathering clouds. "This occurrence is not common; it happens only once every two or three years. But for it to occur during the pre-monsoon is quite rare indeed."

Blondson took the book and looked squarely into Cracker's eyes, raising his own brows in mild inquiry for the second time that day; this was unusual enough so that Graham capitulated and offered a brief afterword: "That means, Ardent, that at night no one can navigate without an inertial tracker. Does that suggest anything to you?"

The lieutenant continued to look into Graham's eyes for a moment, then said: "Piter de Vries and Sang Froid?"

"Precisely, Ardent. Now, is my meeting with Lieutenant Wafer set up for tonight?"

"Yes sir. He'll meet you at the docks at 2100."

"Very good. I'd also like an appointment with Colonel Khan; make it for an

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hour earlier; I'm pretty sure he'll be at his in-town apartment tonight." The Alliance officer clenched his jaw. "Now go get that doctor and bring him in here immediately; I've been in this bed long enough."

DXIII

That evening Graham, limping slightly, was ushered into the Khan apartment by IknowI.

"Good evening, Colonel Khan." Cracker also nodded to IthinkI, who was there in a severely tailored suit that gave her a businesslike air. Graham had by now realized that the colonel's daughter was privy to all of the Dorsal officer's dealings and most secret counsels, so that she could run his life properly. It was a situation that everybody accepted without question.

She nodded back curtly. "Good evening to you, Colonel Graham."

At IknowI's invitation Graham sat down and accepted a goblet of fayalin. Since his appointment with Lieutenant Wafer was less than an hour hence, he wasted no time in getting to the point. "As you've probably heard by now, Colonel, I've been given command of a short batallion of Dorsals. I'd very much like you to be my field second, if you would, while I establish my operation here in town."

IknowI smiled and said: "Yes, the word's out that General Trainer has been generous enough to give you just enough rope to hang yourself."

Graham smiled thinly. "Well, Colonel, I do believe the implication was that it wouldn't be too long—in fact, only until I gave the general a good reason to get rid of me."

Khan said: "Like you making a didactical blunder?"

Cracker's rare smile remained. "Exactly. I understand this job would be quite a step down for a person with your seniority. Still, it might be rather interesting—and only your reputation is at risk. . . ."

At that point IthinkI broke into the conversation: "Exactly what is your purpose in doing all this, Colonel Graham?"

Cracker looked searchingly at her. "You might not know it, miss Khan, but I am in the process of writing a military treatise called *The Didactics of Mystique*. The first 47 volumes have been completed, but the remaining 154 volumes can only be written in the field. That is why I have ignored the advice of the medical specialists," he gestured deprecatingly at his half-prosthetic toe, "and come out into explored space."

IthinkI said: "You mean that the only reason you're risking your own life and that of many soldiers is to write a didactics treatise?" She scowled, looking momentarily ugly in the low room light. "That seems like a rather childish motive, Colonel."

Cracker shook his head ruefully. "The business of risking lives seems to be rather well-established over the past million years of human history," he said. "I don't think my private reasons are going to change that condition. In fact," he said, pursing his lips to match her scowl, "the purpose of those volumes will be to *save* lives, by accomplishing the objectives of warfare with the maximum efficiency and minimum loss of life."

She looked into his eyes, as if seeing

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the depths there for the first time. "Is that all, Colonel?"

Graham calmly returned her gaze. "No. Recently I've felt very strange, as if my place were no longer on Earth, or with the Festerin' Alliance. In fact, I believe that the whole struggle between the Alliance and the Foalition is like that between aging dinosaurs. It seems to me as if the whole race is breaking up into splinter groups according to some wierd pattern. For instance on the world of Newton, the science of physics is becoming dominant, along with the growing of figs. On Hominy and Dissociation, the religious element is prevailing; and here on Poultice the Despotics are doing new and unfathomable things with the human mind. On Dorsal, they seem to be growing a crop of mercenaries, so I think that is where the fighting man of the future will be born and bred."

He took a sip of fayalin, savoring the bouquet of the delicate purple liquid. "So the dozen or so worlds of explored space are heading toward specialization, as if the race were trying a new method of operation. The trouble is, the number of specialties necessary to maintain our basic level of civilization is about two thousand, and I can't figure out where the other nineteen-hundred ninety-odd specialties are going to emerge, or why the various worlds would want to specalize in the first place, since diversity is necessary on all worlds in order for them to survive."

He stared into his glass. "It's almost as if some gigantic, godlike presence —some omnipotent Author of Events—were forcing the human race into some unnatural, stupid posture." He shrugged. "Anyway, my bent is military, and I believe I'm going to be one of the shaping forces of the world of Dorsal. And," he glanced back over to IknowI Khan, "in order to gain the kind of credentials that will make the kind of men I want flock eagerly to my side, I must win a series of stunning military victories at near-impossible odds. In this way, I can properly immortalize my name and," he looked intently at IthinkI, "my *line*."

A slightly uncomfortable silence followed; Graham was somewhat nonplussed at being cajoled into revealing his innermost thoughts. But after a short pause he recovered and spoke again to his elder: "Well sir, that's the proposition."

"I'm with you, Graham," IknowI said. "That wasn't just a good guess about the guerilla invasion of the uplands; and the way you handled them represented, to me, the very best kind of soldiering." Shoulders back, he looked at the younger man. "So what are your plans, and what can I do?"

Graham said: "Thank you, sir, for believing in me. As to plans, I suspect that shortly the Neuberghers will attempt a move against the upriver town of Sang Froid, so I'd like to start our batallion immediately on jump training." He looked at his watch. "And I'm afraid I must leave now; I'm scheduled to meet Lieutenant Wafer in a few minutes and take a look at his fleet of amphibious dozers. Would you care to accompany me?"

IknowI stood up with Cracker and said: "I think I'll pass. I've seen his operation, and I'd better get started on the orders to move the troops." He

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glanced back over his shoulder. "But IthinkI would be happy to join you, wouldn't you, dear?" He looked so pleadingly at his daughter that she nodded her head without a word of protest. The older man then pulled Cracker to one side and spoke confidentially in his ear: "IthinkI knows all my secrets anyway, so it wouldn't be untoward if she joined you. She is a strong force influencing my life; and my fervent hope is that she will meet some man, marry him, and begin influencing *his* life and leave me alone." He looked hopefully at Cracker. "Perhaps you might be that lucky man; she's quite a woman, you know. . . ."

Several minutes later, Cracker and *IthinkI were passing the Alliance mili*tary complex when a figure stumbled from the door of the Officers' Club and almost collided with them. It was Lieutenant Ill Baythe r, and he had obviously drunk too much. As he recognized Cracker, he stepped back and performed an exaggerated, mocking salute. Gravely, Cracker returned it as the lieutenant began to speak:

"Wel-l-l-l if it isn't the great luckout artist, Colonel Graham," he snarled thickly. "And don't kid yourself, it was nothing else but luck, and you know it. And because of that, I've gone from being a responsible combat officer to a library custodian." He gave another mock salute. "Thank you *very* much, Colonel Graham, *sir!*"

Graham regarded the younger man coldly, and there was ice in his voice as he spoke: "Your words betray your ignorance, Lieutenant. If you knew half as much about combat theory and didactics as you do about trying to escape blame, you'd understand enough to keep your mouth shut when you're in the wrong."

"Well you're not so hot either, Colonel," the young man grated between clenched teeth, "and I'm going to prove it. There are 47 volumes of yours in that library, and there're bound to be mistakes somewhere in them—and you can bet I'll find them. And when I do, I'm going to use them to hang your hide out to dry, *Colonel.* We'll see who has the last word!" He stumbled off into the darkness.

"Did you have to talk so harshly to him, Colonel?" IknowI said. "You'll only make him more bitter than he already is."

Cracker said: "There's nothing really wrong with that boy except laziness; if he can only be induced to give himself the proper grounding in basic military theory, he would make a fine soldier." There was uncharacteristic warmth in his voice that made the girl wonder. "For now, hate will do as a motivator because he needs the strongest inducement possible. Hello, Lieutenant."

This last was said to a tall moustached young Navy officer who had joined them in the dark. "Lietutenant Verathin Wafer, please meet IthinkI Khan; she's Colonel IknowI Khan's daughter, and cleared for the highest possible security level."

"How do you do, Ma'am," he said respectfully. "And hello to you, sir. And by the way, congratulations on the licking you gave those Neubergher guerillas. We needed that; it'd been some time since General Trainer had come up with any kind of a victory, and morale was getting kinda low. Here's

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the command vehicle now, sir. Would you both like to come aboard?''

While talking, they had walked the final few yards to the waterfront. Here, where the Greyflood River merged with the ocean, the Port of Enoy actually began. And here were moored, half in and half out of the water, five very large amphibious tracked vehicles. The nearest was the command vessel, indistinguishable from the others except for the flag now flying from a temporary mast above the conning tower.

''Thank you,'' Cracker said. ''We're looking forward to it.'' He handed IthinkI up to a grinning crewman waiting by the entry hatch. Then he and Lieutenant Wafer followed into the bowels of the vessel.

Soon they were standing at the large control panel, with Lieutenant Wafer eagerly explaining the operation of the vehicle. Graham had never before been on such a vessel, but was soon asking intelligent questions that had the younger officer nodding in admiration. During a pause in the dialogue, Cracker gestured to some unmarked switches on the console. ''These have no obvious function,'' he said. ''Are they by any chance the controls for the new sensor float?''

''Wow! How did you know about that, sir?'' asked the Lieutenant. ''That just became operational a couple of months ago and is still classified top secret.''

''Well,'' said Graham, ''six years ago I read an article in *Festerin' Electronics* about the development of the circuitry necessary for such a device. I applied some mathematical didactics to the problem and decided that the amphibious fleet would have them operational by about four months ago.'' He shrugged condescendingly. ''So I just made what you might call an educated guess.''

The young officer shook his head in admiration. ''What a guy!'' He then straightened his shoulders and said: ''Well, knowing you, sir, I realize you didn't want a tour of the vessel just for entertainment; so what did you have in mind? We'll be happy to help you any way we can.''

Graham regarded the youngster calmly for a moment before speaking: ''You have a tremendous potential here with these machines. Does General Trainer use you for anything but bottom dredging on the river?''

The lieutenant shook his head disdainfully. ''I'm the only Navy contingent here; I've tried to get appointments to see the General, and I've written him three reports on all the things he could use us for. But all I get are directives to keep the main river channel clear between Sang Froid and Port Enoy. That takes the services of one machine for two days out of the week. What a waste!'' He looked defiantly at the Alliance colonel. ''Sir, I think General Trainer doesn't know what I can really do for him because he won't listen to a mere lieutenant long enough to find out.''

Graham said tolerantly: ''You'll discover as you go through your career, Verathin, that there are genuine stuffed shirts sprinkled throughout the higher ranks. That doesn't necessarily mean they are bad officers.''

Before the younger man could reply to this remark, Graham continued: ''If

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you're interested, I could use your machines for a night."

"You bet, sir!" the youngster said eagerly. "Are we going to capture a bunch of Neuberghers like you did the other night in the uplands? Wow!"

Cracker allowed himself a slight smile. "Something like that, Wafer. Do you have a map of the peninsula between the Black and White rivers?"

"Sure thing, sir." The young man punched three buttons and an illustration sprang to life on the console's video screen. It showed the town of Piter de Vries on the western side of the peninsula, and Sang Froid farther south on the eastern side. The peninsula itself was the land mass situated between the two rivers; as its tip was the confluence where they joined to become the Greyflood, about forty kilometers above Port Enoy.

Graham pointed to the Neubergher town of Piter de Vries. "Six nights from now, a large contingent of the enemy will depart from here with the objective of capturing and holding the town of Sang Froid. For some rather complicated reasons they will invade from the south, so they will use the cover of darkness to march down the western side of the peninsula here, around the tip, and back up to attack Sang Froid along the eastern edge of the peninsula here." His finger swept down around the headland and back up to the Alliance town of Sang Froid.

"So what do you want me to do—come up from the water and start mowin' 'em down as they round the tip, huh?"

"Not quite, Verathin," the colonel said. "I don't really want to kill anyone I don't have to; and besides, if we did it that way, most of them would eventually escape back up the peninsula. I only have a hundred men, but I'd like to try to capture the entire force. That way we can eliminate enough of the enemy to break the back of the Foalition effort on Poultice permanently."

"Wow! How do you plan to do that, sir?"

The colonel pointed to a spot just below Sang Froid on the map. "What if you were to dig a wide ditch, beginning at Convenient Inlet here, and continuing westward across the entire peninsula?"

"Why, it would convert the tip of the peninsula into a small round island. It would . . . wait a minute. If it were done just at the right time, it would trap the entire invasion force. Wow, what a plan!"

"To do it though," Graham said, "your fleet would have to move about one billion tons of earth in a relatively short period of time. Can you do that, Lieutenant?"

"No sweat, sir," the young man said confidently. "These babies are rated at 100 million tons per hour. With five of them, we can have that ditch dug in well under three hours!"

"That's good news," said Graham. "Shall we make it a date, then? I'll meet you and your contingent at Convenient Inlet below Sang Froid six nights from now, right at sundown."

"Got it, sir. Right at sundown. And maybe I'd better travel underwater getting there? Wouldn't want anyone to catch on to what we're trying to do."

"Good idea, Verathin," the colonel admitted. "Oh, and one other thing:

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please tell no one about this. I have my own reasons for not wanting General Trainer to know about the battle until the time is right. Okay?"

"You got it, sir!" said the Lieutenant. "Mum's the word!"

"Very well then," the colonel said, "I'll see you six nights from tonight. Oh, and by the way, lieutenant: you do use inertial rather than magnetic navigational aids, do you not?"

"Of course, sir. What do you think we are—old fashioned?"

DXIV

Three days later in a secluded corner of Baseballa, Graham was standing with Colonel Khan near the edge of a practice jump zone, watching his troops fall from the sky, borne down on their paragravitochutes. Khan was looking at them with a critical eye. "They're not bad for unpracticed troops, Cracker. These Dorsals are fine men; with the right leadership they could be superb."

Graham nodded. "When will you start night training?"

"Tomorrow," said the older man. "We'll do several in-the-dark practice jumps before the real fracas three nights from now. They all know they'll be jumping at night onto a highground, but I don't see any of the fears that would be present in untried troops. As I said, Cracker, these are good men."

"Very good, Colonel," said Graham. "All right, let's go take a high-altitude reconnaissance. I haven't given you the exact details of this operation yet, and I'd rather show you from the air."

As the little observation plane headed upward toward the confluence of the Black and White rivers, Graham began explaining the situation to Khan: "Now, Bow deCastrati will send his troops from Piter de Vries down the—"

"Why are you so certain that deCastrati will send troops? You seem to assume he has a personal vendetta against you."

"He does, Colonel Khan. You must believe that. I've foiled him three times now, and he can't afford to—"

"Three times?" said the older man. "I'm only aware of one: the attempt to invade the uplands."

"The other two were the incident with the egg at the table onboard the outbound ship, and the guerilla attack on our transport into Baseballa from the spaceport." He looked intently into the Dorsal officer's eyes. "The Foalition gives aid in as niggardly a fashion as possible, in the form of money and old weapons; they supplement this with visits by VIPs to boost the morale of their puppet states. You can see that in a situation like this, *face* is extremely important. And deCastrati has lost *face* three times now; so he simply cannot afford to leave Poultice without a significant victory against me." He shook his head. "No, Colonel, there is no doubt that deCastrati will send troops in an attempt to score a capture of Sang Froid and gain control of the entire upper river region."

IknowI was nodding his head. "I've never looked at it in exactly that way, but everything you say is right; it makes sense. I suppose the only other question I have is: why three nights from now?"

"You're aware that that is the night of Rasmussen?"

"Of course," the older man said. He

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was far too good an officer not to pay attention to local details of military importance.

"And that we have just entered the pre-monsoon season?" Graham continued. "Does the combination of those two factors add up to anything of military significance that you can think of?"

"Of course," repeated the Dorsal. "Nobody in his right mind would try to navigate on such a night without inertial aids of some kind."

"Exactly," said Graham. "And it's a well-known fact that the niggardliness of the Foalition has placed the Neuberghers in combat without such devices; they only have magnetic compasses. Normally, that would mean that during Rasmussen they'd have to stay holed up in Piter de Vries."

"Just what I was saying," said Khan. "They'd be foolish to try anything."

"But that's precisely why deCastrati *will* try something," said the younger man. "And furthermore, he knows that *I know* he'll attack from Piter de Vries to Sang Froid, for those very reasons I just gave you; this because he's now aware that I'm rather smarter than he gave me credit for at first. The only question remaining is the direction from which the attack will come."

Graham looked intently at the Dorsal colonel. "Now we have an interesting situation here: deCastrati knows that I know an attack is coming. But what he *doesn't* know is that *I know* he knows I know. Therefore the only thing he will avoid is attacking along the obvious route; he'll deduce that I'll have it booby-trapped in anticipation."

During the conversation, the reconnaissance craft had climbed to ten kilometers. Now Graham moved to one of the observation windows and gestured to the terrain below. "What I'm about to say will be much more obvious from up here than if we just had a map spread in front of us." He pointed down to the land area between the two towns. "You can see that the obvious attack route is the old road between the two towns, built during a time when they weren't pit against each other by the opposing groups of Earth. It's well paved, and easy to follow in the dark, even on a cloudy night.

"But remember, that's the route they *won't* take. Now look here." His finger swept south from Piter de Vries as he continued: "there's a feature of the terrain that *is* easy to follow, provided the Neuberghers are willing to undertake a forced night march: and that is the riverbank. See, the configuration of the confluence of the Black and White rivers is such that a marching troop has only to keep water on its immediate right, and it will march all the way down around the point, back up the White River, and into Sang Froid from the blind side of a defending troop expecting an attack along the road. And that's exactly what they are going to do."

For a moment Khan looked at the younger man with something akin to awe in his eyes, then said: "So what's your plan?"

Graham said: "You see Convenient Inlet just below Sang Froid? Well, that marks a swath of lowlands that cuts east-west across the peninsula just north of the Ring-of-Ridges. As soon as darkness falls, Lieutenant Wafer and his amphibious dozers will rapidly cut a canal

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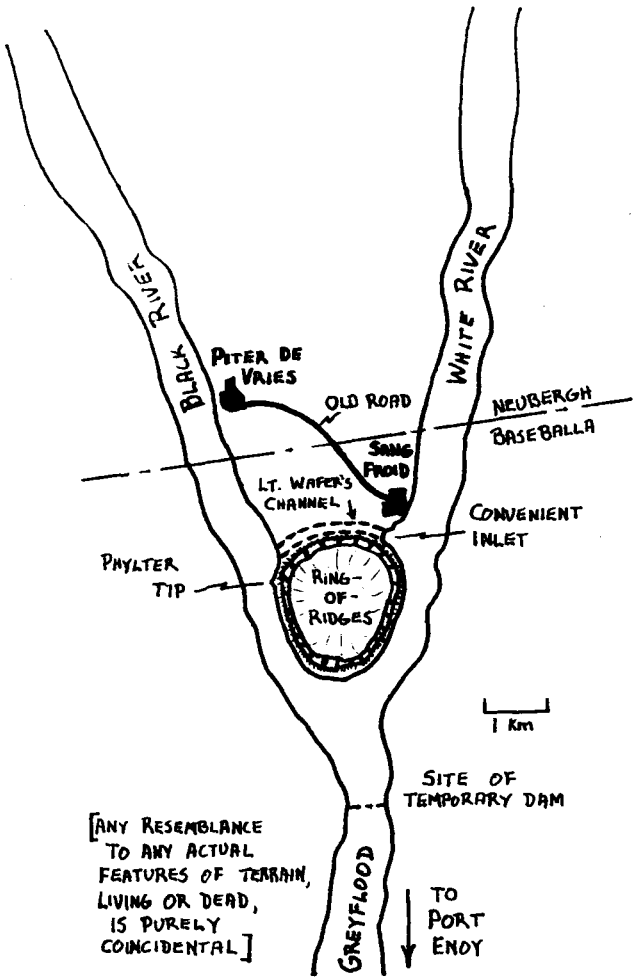
across that area, stopping just short of the Black River to avoid being seen by the enemy marching down past Phylter Tip. There will be about 10,000 enemy on the march, so it will take two or three hours for them all to pass by there. By then, the front echelon will have been guided by the new channel into beginning their westward leg; so the dozers will finish the job as rapidly as possible, just in time to get out of sight before the first troops come around full circle and run into their own rear echelon.''

Colonel Khan listened in amazement, then a thought occurred to his shrewd old tactical brain: ''But there'll be 10,000 of them, and less than a hundred of us. How will we handle them? Surely



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when daylight comes, the situation will be evident, and they will simply cross the new channel and retreat in good order back to Piter de Vries." His face lit up. "Oh, I see. Once they've been forced to retreat, you will have won a bloodless victory and deCastrati will have lost face again."

Graham's voice was tight: "Well, not exactly, Colonel. By the time daylight rolls around, I expect that the entire Neubergh force will be our prisoners. Here's what I intend for us to do. . . ."

DXV

On the evening of battle, Cracker stood beside a line of five gigantic shapes near Convenient Inlet just below Sang Froid. The sun was disappearing below the horizon, and the clouds were briefly illuminated from below with a lurid light. Half out of the hatch of the nearest dozer stood Lieutenant Verathin Wafer, washed in light spilling from the control room below, so that the most obvious feature on his face was his generous moustache, now twitching eagerly in anticipation of the events ahead.

Graham was talking: "Now you know what to do, Lieutenant, and our timetable can be met?"

"I'll have the job done in plenty of time, sir," said the young officer excitedly. "Once the last of the Neubergh-ers have passed south of our cut line, we'll finish the ditch in just a few minutes. The rest of the work will all have been done. Your channel will be a hundred meters wide by about a meter deep."

"I'm glad to hear that, Verathin," said Graham. "And if that's the case, maybe you could make the final cut with just three vehicles. That way, after the initial job is completed, you could send two of them down to the Greyflood to build a temporary dam to raise the river level by a meter or two. It might help the Neuberghers make up their minds about surrendering to stay alive. . . ."

"Fabulous, sir!" The young man hit his palm with a balled fist. "I'll be able to begin before 0100, and by 0300 you'll have a rise of about 150 centimeters. Unless you want it higher?"

Graham smiled invisibly in the dark. "No, I think that should be plenty to do the trick."

They were about to exchange farewells, when a thought struck the younger officer: "Sir, what does General Trainer have to say about all of this? I know you have command of these troops, but he's still your superior and has the final say on all battle plans. This strikes me as too bold an action to suit his style —he's a little stodgy, you know."

Graham's voice was flat as he answered: "General Trainer is nowhere to be found at the present time, and in his absence I must act according to the dictates of my conscience and the didactical situation." He looked intently at the mobile young face. "Which means, in this case, that we are are going to capture thousands of enemy soldiers with 94 Dorsal troops and your five amphibious dozers. Carry on, Lieutenant, and I'll see you back here at dawn." He strode away back toward the nearby town where the drop transports were waiting.

"Wow, what a guy!" Wafer said almost reverently as he slid back down the hatch into his metal behemoth.

Less than an hour later, Graham stood

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at the jump door of the drop plane; the rest of the troops had already gone, and the pilot was circling, waiting for his last passenger to jump. The didactician turned to Khan, standing by his side, and said: "All right, all command elements have my orders. We've confirmed that at least nine thousand Neubergh troops have departed Piter de Vries and are heading due south along the eastern bank of the Black River; the first of them should be past Phylter Tip by now. In less than two hours, the leading echelons will be well around the point and turning west along the new channel; and I must be there to see the strategy unfold."

Khan said, with a note of concern in his voice, "But your toe, Cracker. If anything happens during the jump, who knows what the outcome might be. It will be pretty dicey up there, and there won't be anyone to help you if you hurt yourself. Remember you're jumping into rough terrain in pitch dark."

"I'm aware of the terrain in Ring-of-Ridges, Colonel Khan," Graham snapped. Then, as if realizing that his slight nervousness was making him fall out of character, the younger man's voice softened: "I appreciate your concern, IknowI, but this is one fracas I must attend. Something inside is pushing again—perhaps that invisible, authoring force that has guided my other apparently senseless moves. Anyway the men all have their orders, know exactly what to expect and do, and we rehearsed this maneuver in detail last night. If anything happens to me, it won't appreciably affect the outcome of the battle."

He clapped the older man on the shoulder. "That we'll win a stunning victory is almost a foregone conclusion." Then he jumped through the door into the blackness below.

"What a man," said Khan, then: "All right, Pilot, return to base!"

Almost as soon as he began to fall, Cracker started a spin. Hastily he recalled his old training in time to arch his back and throw all limbs straight out from his body. Then he activated the paragravitochute and pulled his legs down so that he was falling feet first toward the terrain below. He had to fight a tendency for his body to tumble; he'd forgotten how tricky it was to fall around a center of gravity oriented head-to-feet. By the time he'd re-mastered the trick and looked down through his infrared sensor goggles, he was alarmingly close to the ground. Hastily he assumed the land-and-roll position necessary for his fall rate of three meters per second.

Graham landed correctly, feet first, but had the extreme bad luck to alight on a rock with a wicked point sticking into the air. Unfortunately, the fourth toe of his left foot came into first contact with the point; and although he quickly rolled off it, the pain was excruciating. He instantly threw up a nerve block, then lay down and performed his unique internal yoga. The deep-breathing routine soon established control, and he was able to relax somewhat by setting up a partial, floating, semi-permanent block. He got up, and gingerly took a few trial paces. He felt, distantly, a monstrous stabbing pain every time he put weight on the foot; but the floating sense of detachment allowed him to ig-

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nore it for the moment and get on with the business at hand.

He looked at his surroundings, surrealistic through the infrared sensor. The Ring-of-Ridges was literally that—a low ring which was the remnant of a volcano extinct ages ago, and now forming the point of the headland between the two rivers. The outer slopes of the ring were steep, and bare; they rose to a height of two or three hundred meters above the water of the rivers. The inner slopes were much less precipitous, forming a shallow bowl about two kilometers across and fifty meters deep. Graham, landing inside this shallow depression, had less than a kilometer in distance and fifty meters in altitude to gain before linking up with the Dorsal contingent at the crest. From that point, he'd be able to look down upon the enemy force circling outside the ring.

He climbed carefully up the slight slope, conscious of the fact that, with every step, he was further damaging the toe. Using his portable inertial tracker, he headed for the spot just above Phylter Tip, where he knew the field commander of the Dorsal batallion would be. After twenty minutes of climbing he heard a faint challenge from upslope, and responded with the appropriate countersign. An aide helped him up the last few meters, where he came face-to-face with the field commander, Major David Apt Organ. They shook hands without speaking; the major then gestured over the western edge of the bluff. Through their sensors, they watched a large body of men moving southward along the Black River.

"This is the last of them," whispered the younger officer, "just passing Phylter Tip, there. The dozers have been finished with their preliminary work for more than half an hour now, just waiting for the rear echelon to pass."

Graham watched the final troops until he judged they were out of earshot of the dozers, then pulled a small transmitter from his vest pocket, thumbed the mike button, and spoke quietly: "Verathin, Cracker; Verathin, Cracker."

Almost without pause came the soft, tinny voice of the Navy Lieutenant: "Graham, Wafer; Graham, Wafer. Is that you, Colonel?"

"Aye-firm, Lieutenant. The last echelon is now past Phylter Tip, and you may begin operations."

"Wilco, Colonel. And you'll notice there are only three of us; Delta and Epsilon left over an hour ago to build your dam. In a very short time the water should start to rise, flooding to a meter and a half by oh-three-hundred, over."

"Very good, Lieutenant; carry on. Oh, and be sure to return to Sang Froid via the Black and White rivers, rather than through your new channel, over."

"As per plan, Colonel. I'll see you at the Inlet below Sang Froid at oh-six-hundred. Over and out."

Suddenly in the blackness below, where everything had been still, there was a sense of movement. Through the infrared monitors Graham and Apt Organ saw three monstrous shapes rise from the end of the newly dug channel and begin their work. They each knew their jobs and their assigned places, and soon earth was being moved at a prodigious rate. Graham nodded to himself, assured that the remaining fifty meters

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of channel would be finished in short order.

Cracker then radioed back around the Ring to find out the status of the front echelon of enemy marchers. One of Major Apt Organ's patrol leaders reported that the front troops had rounded westward at Convenient Inlet, and were now following the new channel back toward the Black River. "I estimate they'll reach your position in about ten minutes, sir," the soft voice concluded.

Graham looked back down at the operation below. The three dozers pulled the final earth from the ground and pushed it over the bank onto the northern "shore" of the new canal. The waters closed in, completing the channel, and making Ring-of-Ridges an island. Now the vehicles disappeared under water as they made their way out into the Black River and turned southward.

Cracker looked at his watch: it was just past 0200. He was about to give the command to Apt Organ to begin the next phase, when he got word that the front of the enemy's line was speeding up —almost beginning to run, in fact. As he stood contemplating this new development, the major spoke quietly into his ear: "Should I give the word to begin firing, sir?"

Graham shook his head. "First let's see what happens when the front and rear connect."

After about fifteen minutes the colonel's patience was rewarded. At a point several hundred meters south of Phylter Tip on the Black River, the front echelon had advanced far enough to see the movement of the slower rear ranks in front of them. The two officers, listening from above, heard faintly below the subdued sounds of pellet rifles being fired.

Major Apt Organ turned an inquisitive head toward his superior. "Now?" he said.

"Not quite yet, Major," was the reply. "Let's wait until they discover they've been firing on themselves. Shortly after that, they'll realize they're on an island, and in the middle of an unknown tactical situation. Then we shall commence."

After a few seocnds the firing from below stopped. The major lifted his radiophone to his mouth, but Cracker held him off for three more minutes before nodding his head. Then the younger officer pressed the talk button and quietly gave the word to commence firing.

Due to their small numbers, the Dorsals were spread thin on the Ring-of-Ridges; their separation distance was about 60 meters. Yet each man had been carefully drilled in exactly what to do. There was no hesitation; in unison, they began to fire steadily into the body of men below. Each man fired at an angle to the left, then straight downward, then angled to the right, so that all fire from the ridge overlapped below. Graham knew that such a pattern would make it almost impossible for the enemy to determine the size of the force doing the firing.

At first, pellets were returned vigorously from below; but soon, as the enemy began to see that their own fire wasn't having any effect, it began to slack off noticeably. The Dorsals, meanwhile, sustained the steady barrage, keeping the troops below pinned behind whatever cover they could find

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between the riverbank and the bottom of the steep slope of Ring-of-Ridges.

After several minutes, Graham looked at his watch; it was 0247. He limped over to the PA system, noticing that the condition of his toe had worsened during the battle. With each step he fought off blackness as the pain from the damaged digit threatened to pull him down into oblivion.

He moved to the table supporting the heavy equipment, picked up the microphone, activated it, and began to speak: "Neuberghers, listen to me! You have been deceived about the size of the enemy force you are facing. You now know that you are trapped on an island, and that the water level is rising. You will be allowed up to the high ground only if you throw down your weapons and surrender. Otherwise you will be trapped between our fire and the river!"

Graham began to step back from the console when the table upon which it was resting took a pellet in its leg. The table collapsed, and the heavy electronic equipment slid off and fell so that the sharp corner of the amplifier was driven with cruel force into the fourth toe of Graham's left foot. The Alliance officer crumpled to ground; he tried to control the pain, but knew this time that he couldn't put off the blackness starting to engulf him. His last words were to Major Apt Organ: "They'll be surrendering momentarily. Follow the plan; keep them in groups of 100 as we practiced. Don't bother with me until this business is over; you can't spare the men. . . ." He lost consciousness, and thus missed the culmination of what was afterward called "The Battle of Poultice" by the Despotics, because it was the last military contest of any significance to be fought on that planet.

The commander of the Neubergh forces had been in a quandary for some time. Even though it was Rasmussen, the plan to follow the riverbank around Ring-of-Ridges up to Sang Froid eliminated the need for inertial trackers; also, intelligence from *very* high sources said that there was only a weak Baseballa troop defending the town, and that they would be laying a trap for the Neuberghers along the Old Road. He didn't object to the forced march necessary to travel the long way to Sang Froid; he considered that the extra exercise would more than pay for itself in saved lives.

But around 0200, things had begun to go wrong. His sense of time and direction, after they had rounded the tip between the two rivers and headed back up toward Sang Froid, told him that they should have already reached the town. Instead, there was still water on the right, although the riverbank seemed curiously plowed up. He gave the order for a rapid pace; within a few minutes/his troops were out of breath, but he was at last rewarded by sounds of another force up ahead. Immediately he gave the order for marching fire, knowing that shooting into the back of a moving troop was one of the best ways to demoralize the men.

The commander was rewarded again by startled cries from the force ahead as the trailing members fell to his fire. Then the platoon leaders of the opposing force gave the order for their men to drop, turn and return fire—and the orders were in Neubergher dialect! Startled, the commander ordered a cease

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fire, then shouted a coded phrase into the darkness ahead; to his dismay, it was answered correctly. As the situation resolved itself, the commander, who was not stupid, began to realize what might have been done to him. He remembered the curiously plowed riverbank, and with a word to his second-in-command, he began working his way rapidly back to where the channel must be, to test it for fordability.

But he'd only gotten a little way when he began to hear fire from the ridges above. Pellets snicked around him not at a devastating rate, but heavily enough to make the men take what cover they could. The pellets seemed to be coming from all directions, indicating a complete coverage from the Ring-of-Ridges above.

About this time, one of the platoon leaders noticed that the river level was up noticeably, and continuing to rise. As the word spread, a small panic erupted within the ranks, which was put down with some difficulty by the subcommanders, since most of the Neuberghers were not good swimmers. The commander looked from the water's edge to the steep slopes nearby; there was not much room between the riverbank and the abrupt rise of the Ring-of-Ridges massif.

The harassed commander was about to give the word to attack up the slope, risking the plunging fire of a force of unknown size in order to prevent complete chaos from overtaking his command, when an amplified voice from the ridge above began to blare out down the slope. The voice stated in Earth/Alliance accents that their situation was hopeless, and that they must throw down their arms and surrender if they wished to attain the safety of the highlands. As the message ended, the commander heard the echoes trail away on either side, so he knew that the message was probably being repeated all the way around the ring.

Then it was over before he could stop it. The relatively undisciplined Neubergher troops had been expecting an easy victory, taking a vastly inferior enemy by surprise from the rear. Instead, it was they who were surprised, cut off, and overwhelmed by an enemy of unknown strength and vastly superior position. By the hundreds, then thousands, they threw down their weapons and began ascending the slopes of Ring-of-Ridges with their hands held high in the air.

The battle was finished, decided not by the commander, but by the invisible hand of Didactics, guided by the young lieutenant colonel who lay unconscious on the ridge above.

DXVI

Cracker woke in the hospital, feeling a mildly frustrating sense of *déjà vu*. His entire leg was held immobile in an overhead sling. The fourth toe throbbed with a deep ache that perhaps harbinged more trouble before it was ended. But IknowI and IthinkI Khan were there, and their smiles were momentarily welcome.

He looked carefully at IthinkI. Her smile was unforced, and in her eyes was a promise he hadn't seen before. Then his attention turned to IknowI, who began to speak with animation:

"It was a beautiful thing to see, Cracker, those Neuberghers giving up

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by the thousands. When they found out there were only a hundred of us, it was too late; they were weaponless and already herded into easily controllable groups. You should have seen the look of disbelief on the enemy commander's face when he found out how he'd been had. Made me feel like a cadet again."

The old colonel frowned briefly. "But General Trainer was most unhappy to be locked in your office during the battle. He made it quite clear that you were no longer welcome in his command."

"How about deCastrati," said Graham. "Any word from him?"

"Yes there was—and funny you should ask," said IknowI, "because he predicted that one of the first things you'd do would be to inquire after him. He seemed genuinely sorry that you weren't yet conscious when he stopped by."

"Yes, he would be," Cracker said cryptically. "But go on."

"Well," said Khan, "he said to give you two messages. First, congratulations on your brilliant victory at Ring-of-Ridges. Second—and this one I don't understand at all—was that he was not yet finished trying to collect on the cleaning bill." The Dorsal colonel looked into the younger man's eyes. "Do you know what he meant by that?"

"Yes," said Graham.

IknowI waited for an explanation, but Cracker said nothing more. An uneasy silence ensued, broken abruptly by the entrance of Lieutenant Ill Bayther, the passed-over ne'er-do-well who had sworn revenge on Graham for making a fool of him. But there was a smile on the young officer's face as he bubbled into the room and congratulated Colonel Graham on his victory.

Cracker said: "The last time I saw you, you weren't so ready to wish me well. What's happened since then?"

"What's happened," said the youngster, "is that I've read the first 47 volumes of *The Didactics of Mystique*. I started it with the intention of catching you out; but some time during the process, the whole thing started to make sense. By the time I'd finished, I was overwhelmed. Your victory on the peninsula wasn't really a surprise, either," he continued. "In fact, after reading your books, what you did seemed rather obvious in retrospect."

The lieutenant straightened up and spoke more formally: "Sir, I have a request: wherever you go, whatever you do, I want to come with you and be a part of it!"

Cracker said: "Then make out your papers for Dorsal. I could use another young officer who idolizes me."

Khan looked quizzically at Graham. "You've decided, then?"

"Yes," said the Alliance officer. "In truth, I've known all along that my future is with the Dorsals. There I plan to create an entirely new type of soldier, who will be part of an entirely new type of fighting organization. Only with such a force can I write the remaining 154 volumes of *Didactics of Mystique*, because only this new type of organization will be able to translate my books into the realities of the battlefield."

Graham's eyes brushed each person in the room in turn as he continued: "Furthermore, I intend not only to emigrate, but—with the appropriate consort—" at this point he looked long and

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hard at IthinkI Khan, "I intend to found a dynasty whose members will be a leading force in the Dorsal clan hierarchy."

IthinkI blushed and lowered her eyes. Her father looked on blandly. Lieutenant Bayther leered, grinned and nodded in approval.

"But first," said Cracker, "I must get this toe well. My new program will require a type of super athleticism, which I must perfect on myself before I can impart it to my new troops—and I must have a perfectly intact body to achieve the results I need." He smiled broadly for the first time in several years. "So I can't very well tolerate a bad toe. This time, I'm going to have to give it time to heal properly."

Just then his aide, Lieutenant Blondson, came in, ushering the doctor. Both men had worried looks on their faces.

"What's the matter?" asked Graham.

The doctor spoke: "I've just examined the latest X-rays of your foot, Colonel." His eyes met those of the bedridden officer. "And I'm afraid we have no choice: the fourth toe of your left foot will have to be amputated. . . ." ■

TO BE CONTINUED, SOMEDAY, MAYBE . . .

IN TIMES TO COME

Analog's next issue, January 1985, marks the magazine's Fifty-Fifth Anniversary, and in commemoration of this occasion Kelvin Throop will reluctantly return the helm to Stanley Schmidt. The issue will *not* feature Part III of Flash Richardson's *The Didactics of Mystique.* It will, however, feature Part I of George R. R. Martin's *The Plague Star,* a two-part sequel concerning ecological engineer Haviland Tuf. In one sense it's the latest Tuf story, but in another it's the earliest, its action preceding all the others that have appeared to date. Haviland Tuf was not always an ecological engineer: once he was an unprepossessing merchant, peddling his wares among the stars. *The Plague Star* is the tale of how he got out of that line of work and came into possession of his many-powered Ark.

As I write this it's a little hard to predict what else will be in the next issue, but it seems reasonably safe to say that the fact article will be Walter B. Hendrickson, Jr.'s report on a practical application of biofeedback in space. And since that's on the short side, it will probably leave room for G. Harry Stine's "State of the Art" update on his old and well-remembered complaint that "Science Fiction Is Too Conservative."

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Robert R. Chase

SEVEN SCENES FROM THE ULTIMATE MONSTER MOVIE

The trouble with monsters
is that they're
so *obvious,* they obscure our view
of what's *really* important.

The creature advanced, roaring defiance into the night. The earth shuddered at each stride of its huge, clawed feet. All around it, the buildings of San Francisco rose in darkness. Fires growing within the buildings threw chessboard patches of light on the creature's immense hide.

It came to the hastily strung wires and cocked its head. Meter-long incisors disengaged, as if in wonder that so puny a structure should be erected against it. Ponderously, it lurched forward.

"Throw the power on!"

The wires came alive with blue-white lightning. The creature thrashed in unexpected agony. Its tail swept the ground with the force of a tidal wave, snapping the power line poles like toothpicks.

"It's got to hold," Bronson muttered.

The creature pulled back, cowled in a wire tracery. The jaws opened, as if trying to engulf the night. Its bellow was a guttural explosion, not so much a sound as a painful pressure on ears and chest.

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Abruptly, it cut off. For an instant, the monster towered against the stars, a mountainous still-life. Then, almost in slow-motion, it settled into itself and fell. The crash echoed for several seconds after the impact.

Cheering erupted. Workers grabbed Bronson, pounded him on the back with congratulations.

"We did it!" he yelled exultantly. "We saved San Francisco!"

"Like hell you have, sonny."

The cheering faltered. Bronson turned seeing a wiry, balding figure.

"Who are you?"

"Doc Jenkins, city board of health. That's about 500 tons of cooling meat we've got here. It may have been bad alive, but that's nothing to how dangerous it is dead. Any idea how much disease it's going to breed as it starts to rot?"

Viktor sat in the wreckage of his laboratory, taking occasional sips from his beaker of ethyl alchohol. God knows, this dump was drafty enough at the best of times—no running water, no heat, an open skylight for lightning-rods which he had set up to overcome the lack of electricity. Because of the climate, this last circumstance had resulted in a perpetual half-inch of water over most of the laboratory floor. Stray wires from the lightning-rods completed the unintentional resemblance to a primeval sea.

An eight foot hole in the wall had just added cross-ventilation to the dampness. Viktor looked sourly from the hole to the operating table, now shattered where the manacles had been ripped free. He took an incautious drink of ethyl, grimacing as it burned its way through the mucous lining of his throat.

The rest is inevitable, he thought. My creation, as misunderstood as I am, will provoke fear and outrage in the hearts of the superstitious peasantry. Soon they will come clamoring up the mountain, waving torches, pounding on my door, demanding retribution, exhaling righteous saurkraut and schnapps.

It was too depressing. He took another drink, and choked.

There was a discreet knock at the door.

Viktor frowned. The sound was wrong.

"Herr Doktor! Please may we come in? We would like to talk to you."

That wasn't a peasant voice, either. The accent was definitely American.

Viktor laboriously shoved back the great bolt and swung the door in. The hinges, rusting with the dampness, shrieked chromatically up through three octaves. A recent visitor had compared it favorably to late Schoenberg.

Three men entered. Each was dressed in a three-piece suit and carried a briefcase. They walked awkwardly, trying to find dry spots for their Guccis.

"Herr Dokter, allow me to introduce ourselves. My name is Scheister, and these are my associates, Messrs. Baseheart and Capon. We represent Worldwide Electrical Energetics: 'WEE bring better ideas to life.' "

Hearing the jingle in Scheister's surprising falsetto, Viktor remembered why he had chosen to do his work so far from civilization. He motioned them to seats by his workbench. "What can I do for you?"

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"We understand that you have created a monster," Capon said eagerly.

"No, not a monster!" Viktor's fist slammed the bench. "An artificial creation. If it appears a bit, uh, asymmetrical, it's the fault of the somewhat unorthodox parts procurement methods I have been forced to employ."

"We don't mean to criticize," Baseheart said. "We saw your creation at work in the village square on our way up here. Such energy and determination. It tore the limbs from one villager after another with never a pause for rest."

"So you labeled it a monster," Viktor said accusingly, "merely because it defended itself from those too unintelligent to understand it."

Capon pursed his lips doubtfully, wondering how anyone could misunderstand having his arms pulled out of their sockets.

"Tell me," Scheister said, trying to change the subject, "does it eat much?"

"It was infused with Promethean fires at its birth," Viktor said loftily, waggling his eyebrows in the direction of the skylight. "It needs no mortal nourishment."

"But you do have a control problem," Capon noted.

"That," Viktor said, glancing at the hole in the wall, "is impossible to refute."

"Surely that would be no difficulty if sufficient research funds were provided," Baseheart suggested.

Viktor's eyes widened. "Surely."

Scheister smiled broadly (displaying a row of disturbingly *sharpened* gold caps) as he opened his briefcase. "Then let's get down to business."

* * *

Benny jumped onto the barge just as it was slipping out from the wharf. He stumbled against one of the antennae and sprawled full length. As he picked himself up, he found himself staring at dozens of reflections of his own pimply face. It was more reality than he could easily take. He felt an instant of sympathy with the dead creatures. New York was bad enough by itself. If they had felt themselves assaulted by scores of New Yorks, then it was no wonder they had tried to level the city.

Then he caught sight of the barge's owner. "Wait, Uncle Mike!"

Michaelangelo Correlli took the flat, saliva-laden stump of cigar from his mouth and regarded his nephew without enthusiasm.

"MIT has never been known for its contract law classes, Benito. Nonetheless, a bright boy like you surely understands the essence of this situation. The City of New York pays me to dispose of its trash in the Atlantic Ocean. This" he indicated the giant ant which only with difficulty had been crowded onto the barge, "is considered trash."

"We need to study them," Benny protested. "The mere existence of these creatures violates the square-cube law—"

"They violate the law, call the Feds," Correlli said. "I got a job to do." He turned away.

Benny bit his lip, wondering desperately what would impress his uncle.

"There could be money in this."

Corelli froze in mid-stride. "How much?"

"Lots," Benny said, speaking rapidly. "Creatures this large shouldn't be able to support their own weight, much

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less pull down buildings. Think of how thick an elephant's legs are in relation to its body. This ant was ten times heavier than the heaviest elephant yet its legs were much thinner. It follows that whatever they are made of is very strong. My calculations would give it a tensile strength twelve times greater than steel. If we can *grow* such a material more cheaply than steel is made . . ." He let his uncle imagine the rest.

Correlli nodded slowly. "Okay. What do you need?"

Benny took a deep breath. "Take this up the coast to Woods Hole. I can get friends from Cambridge down there to give it a proper examination. I know it's a long way—"

"Don't worry," Correlli interrupted. "Let me get on the radio for a forecast. Then we'll talk to my lawyer about articles of incorporation."

Cleavers were helpless against the sheer bulk of the thing. They brought in chainsaws, which buried themselves in the mass of flesh and stuttered to a stop. In desperation, Bronson called for explosives.

The Governor toured the area, looking harried. "So we can chop it up. What the hell am I supposed to do with it? Every time a dumping site is suggested, the Sierra Club or some other damn group blocks it in court. I can't waste time on this! I have food riots to deal with."

Bronson's eyes lit up with inspiration. "Get butchers and meat packers in here. You can distribute this meat for free."

The Governor looked dubious. "How do you know this stuff is edible?"

As their glances met, they shared one instantaneous thought: *Either way, it stops the food riots.*

"I'm sure," Bronson said carefully, "that Doc Jenkins will consider this the safest option, given the relative health hazards."

"Is that so?" the Governor asked.

"Well, yes," Doc Jenkins said uncomfortably, "but—"

"Great!" the Governor said, acting quickly to prevent losing an opportunity for misinterpretation. "I'll have butchers here in two hours."

"Thank you for coming on such short notice," Diana said to her guest, as they walked slowly through the hall.

"On the contrary, I must thank you for inviting me," Orczy said, in barely accented English. "I have been lonely out here in the country." Indeed, his 'loneliness' was largely caused by his own success, which had caused proper game to become quite scarce. "And as a foreigner, I suppose I have been overly, how would you say, shy. You were wise to know that I could not resist a free lunch."

He smiled, as if making a joke, remembering just in time not to reveal too much of his incisors.

"I am something of a stranger here myself," Diana admitted. "Even though this is the family home, I have hardly been here since I was a girl. I wouldn't be down from London now except for the monster scare."

Orczy nodded sympathetically. "They must be especially disconcerting to scientists, who have always believed such things to be the figments of over-heated imaginations."

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She met the jab head on. "Actually, I have made monsters of various sorts my field of study. I netted a coelecanth in the Sea of Japan last year. This summer, I was part of an expedition to the Himalayas which nearly captured a yeti."

Orczy gave her a look of involuntary admiration. Women had lately become such independent, self-assertive creatures. He himself traveled only when it was absolutely necessary—generally when garlic tripled its usual local price.

They stopped beneath an old oil portrait.

"I suppose I take after my great, great granduncle. This was painted after he had returned from the Galapagos. That was when he developed his ideas on adaptation and extinction."

She led him to the stairway. Orczy decided he would take her in mid-sentence when, her attention focused on her own words, she would be most off her guard.

"Yet despite all this good work, you were telling me that some conservation groups are angry with you. How can this be?"

Diana laughed. "You'll understand when you are in the trophy room downstairs. The problem is that so many of them are sentimentalists. They think that just because a creature exists, the fact that its own destructiveness, stupidity, and stubborn lack of adaptability have brought it to the brink of extinction *ipso facto* makes it worth saving. I—"

He lunged, wrenching her chin up, thrusting his mouth down to her neck. The motion whipped free her gold chain. Reflected light from the miniature crucifix seared his eyes. He staggered back to the railing, felt himself lean out over emptiness.

"—don't feel that way at all."

He hardly felt the razor sharp edge of the wooden stake as it penetrated between his ribs and into his heart.

GIANT MICROBES INVADE CENTRAL EUROPE.

"That is absurd," the night editor said.

Eliot looked up at his father-in-law resentfully. It was the first major headline he had been allowed to write since being hired by the newspaper. It stung to have it dismissed so lightly.

"No more absurd than that vampire story we ran two days ago, or that series we did about the giant ants in New York we did last month. Besides, all the evidence indicates that these things came from the same laboratory as that Frankenwhatzit monster."

"That is not what I meant," his father-in-law said, shaking his head. "I meant the headline. 'Giant microbes' indeed! It's an oxymoron. Change it."

Eliot glared at the retreating back. The old man knew all that pseudo-Latin grammatical terminology and nothing at all about real science or what was taught in journalism schools nowadays. Still, he was the night editor, and Eliot had no delusions that he would have landed his job on pure merit. He would rewrite the headline in the desired form.

GIANT OXYMORONS INVADE CENTRAL EUROPE.

Excerpt from the Statement of Special Operative Smith:

I can't tell you how long I was held captive there. As the drug wore off, two

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sensations gradually impressed themselves on me. The first was the rope chafing my wrists, which were bound behind me. The second was more subtle. At first it resembled a rustling. During my periods of semiconsciousness, I dreamed I was back on the coast of Cornwall, listening to the breakers and the wind whispering through the pines.

Only when I felt the scuttling across my chest did I realize that the sound was caused by rats.

Shortly thereafter, the door of my cell opened and the scent of mimosa wafted gently into the room. My captor entered.

He had the brow of Shakespeare. Brilliant green cats' eyes gleamed from sunken sockets. The mouth was as thin and cruel as Satan's.

"We meet once again, Smith," said the sibilant voice I had come to know so well. "Perhaps for the last time. Tell me, what has induced you to meddle in my plans? I had thought myself well out of your path."

He moved behind me. There was a tug and suddenly my bonds were loosened. I stood, massaging my wrists to restore circulation.

"You fiend!" I cried. "Your 'path' has been a swath of destruction I could hardly avoid. I know that your secret laboratories created the dinosaur that ravaged San Francisco. Your minions mutated ants in New York into colossi. Finding your trail, I tracked you to the Balkans, where you provided experimental equipment to a certain grave-robbing mad scientist. Too late, I caught rumors of your part in resurrecting one of the undead and sending him to England."

"Indeed." A trace of feline amusement crossed his countenance. "Did you discern my motives for these actions?"

"It's obvious. You wish to sow fear and discord, to soften up the world for your takeover attempt." Despite my personally precarious position, I let myself gloat. "It won't work, though. Already, nearly all of your creations have been destroyed. New Scotland Yard and Interpol have been kept informed of my investigations. Even if you stop me, others will hunt you down."

"My dear Smith," he said calmly, "how you misjudge me. As you state, all of my amusing creations have been neutralized. You have studied my methods long enough to know that if that is what happened, then that is what I intended."

While talking, he had been assembling several pieces of electronic apparatus. Now he turned a knob. Several levels appeared on a screen. Bats dodged large spiderwebs on the lower levels. A figure just recognizably female began moving across the screen. A cloaked figure appeared from the left, stalking her.

He touched a button. An abstract cityscape sprang up. A dragon lumbered through the streets. As it demolished buildings, numbers at the bottom of the screen increased rapidly.

"I intended no serious damage," he explained. "Great destruction would have weakened the Western economies, and so undone the results of all my advertising."

"Advertising?" Slowly, the hideous truth began to da

The insidious d[illegible]or looked up from

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the console and smiled. A giant ant had replaced the dragon.

"You Occidentals are so scrutable. All this time you have hounded me as if I were a criminal. I admit that my methods of capital accumulation may not have fit within your rather quaint notions of fair play. Yet even Mafia chieftans invest their ill-gotten gains in legitimate business enterprises. Such has been my intention."

"You have been trying to take over the world!" I protested.

"Of course! Is not everyone? But not through violence. I tried that forty years ago, commanding the bravest and hardiest troops in the world. Two of my most important cities were vaporized because I had miscalculated America's progress on the atomic bomb. (Don't look so shocked, Smith. Surely *you* must have realized that Hirohito was my puppet.)

"Then I asked myself: why conquer the world when I can buy it? I turned the energies of my subjects from war to business. Soon, by concentrating on high technology and low wages, I had built a commercial force to rival the United States. Rival but not dominate. Even my workers needed something to live on. Then I learned of a colleague whose artificial humans required no food at all. I was set to start production with him, when an unfortunate glut in the video games market caused me severe cash flow difficulties. Imaginative advertising was called for to restimulate the market. You have seen the results."

For an instant, I was speechless. At last, able to seize on only the least of the things he had said, I asked: "Why are you, a Chinaman, so involved with the Japanese?"

His smile became positively condescending. "That little joke has been one of my greatest triumphs. How long have your countrymen complained that we all look alike? The truth is, we are. The idea that we are split into Chinese, Korean, Japanese, Thai, and innumerable other peoples was merely a ploy to confuse Westerners."

I am afraid the extent of my demoralization became apparent. He told me not to be down-hearted. He greatly admired the tenacity with which I had dogged him for so many years, the intelligence with which I had foiled his many previous schemes. His organization was in great need of individuals of my caliber. Furthermore, since he had already bought a majority of the seats in Parliament, there would be no question of my letting the side down. Rather, I would be receiving a promotion.

His offer was far in excess of what a special operative like myself can earn, even before counting the fringe benefits. The dacoits are said to be quite eager to learn how I have eluded their snares for all this time. And since we are all working for the Doctor anyway, I feel sure you will understand when I tell you that I am herewith tendering my resignation . . .

"I still don't understand why you are leaving the project," Harriman said. "This has been your consuming passion for as long as I have known you. Under your leadership, we have been successful beyond our wildest hopes. You and I have both traveled through alternate universes, seen as reality things which

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had previously been the province of poets and dreamers. Your last report even hints that you have discovered the underlying principle which unites all realities.''

Berns nodded. ''I have. That's why I'm quitting.'' His voice was flat, his eyes dark with disillusion.

Harriman paced in frustration. He stopped before the Heisenberg device. Even now, he was disconcerted by the way it would blur into indistinctness when no one was looking directly at it. Equally real in every alternate universe, it tended to lose definition when not the subject of some observer's undivided attention. Harriman stared at it, bringing into sharper focus every strut and multicolored wire of its two-meter Moebius sphere shape.

''I must be dense. Explain it to me.''

''It's implicit in the first part of my report,'' Berns said. ''When I did the follow-up, the conclusions forced themselves on me.

''First. Cutting up the Tyrannosaurus for food worked—so well that local stores couldn't move beef and poultry off their shelves and had to petition the Federal government for emergency relief.

''Second. Corelli Associates successfully patented and produced an organic fiber with fifteen times the tensile strength of steel at a third the cost. The result was to destroy the steel industry. Workers who hoped to get jobs from Corelli discovered that most of the positions had already been filled with androids manufactured by Worldwide Electrical Energetics.

''Third. The vampire scare sent the price of garlic through the roof. Likewise the price of religious articles. A group of Benedictines, taking advantage of this, set up a separate corporation to distribute specially blessed medallions and crucifixes. At the end of the first week, it went public. At the end of the third week, it split three for one.''

Harriman frowned, beginning to sense a pattern.

''Don't you see?'' Berns asked. ''We were looking for worlds of wonder, for mystical unities and primal Ur-causes of creation. The problem is, reality is the same everywhere. The monsters were just distractions, 'accidentals' as Aquinas would say.''

''But you only studied one continuum—''

''I sampled dozens more. I met Robin Hood in Sherwood Forest, and asked him why he robbed the rich. He looked at me as if I were daft. 'The poor have no money,' quoth he. I reached Xanadu just after the Pleasure Dome had collapsed into the Sunless Sea. Kublai Khan was having the contractor flayed for substituting shoddy materials.

''That is why I am leaving the project. I thought that particle physics and quantum mechanics were the bases of all reality. I was wrong. So now I intend to join the profession that deals with the real basis.''

Harriman didn't dare ask.

''Accounting,'' Berns said. ■

● Beware of the superficially profound.

Kelvin Throop

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On Gaming

Dana Lombardy

You're probably aware that trivia-type games are "hot" right now, led by Selchow & Righter's famous *Trivial Pursuit*. The other two game giants, Parker Brothers and Milton Bradley, have also introduced trivia games this year—Parker Brothers with *People Magazine*, and Milton Bradley with *Ripley's Believe It Or Not*.

Many other game companies have also released trivia games, and it may come as no surprise that SF enthusiasts now have their own trivia game. Published by Ennui Games, it's called *Space Trivia* and is being billed as "The most sci-fi stuff ever in one box" ($38.00 at your local store, or direct from Box P, Toto, KS 66242).

The first thing that will strike you is the box cover. It's a montage of well-known real and fictional SF personalities—from Isaac Asimov to Mr. Spock. I don't approve of nudity to sell a product, but I must stress that the woman in bondage (representing the fantasy element in the game) shown on the side panels is very tastefully done.

You get a lot in this game: a big 60-by-72-inch playing board showing our galaxy; 20 identical plastic pawns (clones) to represent the players as they race around the board; a 144-page illustrated rules book (only 4 pages are rules; the rest contains the philosophy of the four designers); two dice; and six decks of SF trivia question cards, with each deck devoted to a particular category—sex, religion, violence, movies, books, and people.

Before elaborating on the play of the game, I must mention the designers. As noted above, there's a lot of their philosophy in the game—140 pages in the rules book alone. Actually, it's a running debate between three who are humanists and strongly urge vegetarianism as the path to a bright future, and one recalcitrant who believes there are two gods responsible for creation and that cannibalism is the only way we can ultimately survive as a species.

Happily, they reach a compromise and this is the framework for play in *Space Trivia*.

As you get into it, you soon see there's a lot of design innovation in this game. For example, there are three critical starting positions on the game board. One of these will always lead to victory within 57 turns. Obviously, if the players can set up their pawns on the board anywhere they wish, the first one to set up his pawn will probably choose one of these key squares.

To avoid this dilemma, the designers use a random system for initial positioning of the pawns: one player sits with his back to the game board and tosses all the players' pawns over his shoulder onto the map of the galaxy. Result: perfect randomness.

You might think that this method of set-up is a little strange, but remember this is a large game board.

I usually play with the game on the floor. If you have a small apartment, I recommend sitting on the side where the kitchen or bathroom—the two most important rooms—are, since walking across the board halfway through the game is not proper player etiquette.

(continued on page 141)

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Richard K. Lyon

TOP SECRET MEMO

The author seems to think
this is true, but
professional ethics compel me
to run it as the fiction it obviously is!

K.T.

To: Casper Weinberg, Secretary of Defense
From: William B. Casey, Director, Central Intelligence Agency
Subject: Project Amphibious Battleship

With the unanimous support of the Joint Chiefs of Staff I advise the immediate implementation of the Amphibious Battleship Project based on the following considerations:

A: In the Middle East the United States faces a number of regimes which are effectively paranoid, i.e. even though the leadership groups may include people of considerable talent and intelligence these people must function in a climate of unreasonable fears. This often makes it very difficult for the United States to negotiate equitable resolutions of our differences with these regimes. When they are in a position of military advantage they dare not accept any bargain we offer them no matter how advantageous for fear that their domestic opponents will condemn them for not pushing harder, not getting even greater concessions. When we can confront them with obvious superior force, they are willing to face extreme risks rather than lose face by yielding.

B: The one bargaining situation in which they can be expected to act rationally is temporary advantage; when they believe they can make a better bargain now than later they will negotiate sincerely. The Iranians, for example, sold the hostages to Jimmy Carter in the last days of his presidency rather than

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risk Ronald Reagan's response to this provocation. Remember, however, that President-elect Reagan did not make any public threats, did not create a situation in which the other side felt they had to be inflexible. Similarly President Eisenhower did not publicly threaten the North Koreans with nuclear war since that would simply have hardened their position. Instead he privately informed them that, should the peace talks fail, the United States would hold all options open, including the nuclear. This did much to speed the peace negotiation.

C: Paranoids are vulnerable to manipulation by their fears, even though those fears may be illogical and would be discounted by more reasonable people. Within unfriendly regimes, respect for the United States technological proficiency often takes the form of fear that we are developing awesome new weapons. Syria, Iran, and Lybia are all particularly alert to weapons developments that would be specifically useful in their regions of the world, i.e. desert weapons.

D: Long standing military tradition requires that the guns in coastal defenses not be capable of turning to fire inland lest an invader capture them and use them against the defenders. The highly advanced missile system which protects Tripoli was built with this design philosophy and provides the city with no defense from the landward side. The cities of Teheran and Damascus are both inland cities and are without defenses against naval attack.

E: Routes exist from the sea to Damascus, Teheran, and the landward side of Tripoli which go directly through regions of desert where the sand is deep.

F: The magazine *Analog* has an interesting history. During World War II it published a story about the atomic bomb, of such extreme accuracy that the FBI believed a serious leak had occurred. Even though the story was actually based on unclassified prewar information, the Bureau would have supressed *Analog* had not the thousands of copies already distributed made that task hopeless.

G: The Intelligence services of nations not friendly to the United States watch the CIA closely and are well aware of the above World War II incident. Should something in *Analog* make us twitch as though it struck a nerve they would notice.

H: Psychology Division concludes that one of the most effective ways to convince a paranoid of a lie is to tell him the truth. If the United States fabricates evidence appearing to show a major weapon, lets the unfriendlies obtain that evidence and then artfully plants a leak that the evidence is false that leak will "ice the cake," will be all it takes to convince them that the weapon is real.

I: All three nations are clients of the Soviet Union, Lybia and Syria directly, and Iran through Lybia. We may be sure that the KGB, which is also vulnerable to paranoid weakness, will share reconnaissance satellites with them.

J: One technical area of special Russian weakness and American strength is fluid/solids technology. Discovered by Professor Lewis of MIT slightly before World War II, the fluid bed is a remarkable invention both in its importance and its simplicity. One fills a bucket with sand and forces air in at the

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bottom. The air flows up through the sand, suffering a pressure drop in the process. Increasing the rate of air flow increases the pressure drop and when the pressure drop becomes equal to the weight of the sand a surprising phenomenon occurs. The grains of sand are forced apart, causing the sand bed to expand somewhat. The sand bed effectively ceases to be a solid and instead resembles a slowly boiling liquid. While this effect at first seemed merely an interesting laboratory curiosity, Professor Lewis soon realized that it was potentially the solution to a critical problem. In the laboratory one could readily produce gasoline from crude oil by catalytic cracking, a process which involved passing hot oil vapors through sandlike particles of catylst. One could not, however, use catalytic cracking as a practical method of producing gasoline bacause the catalyst rapidly became fouled and deactivated. While it could readily be reactivated by burning in air, there was no practical way to move the catalyst back and forth between the cracking reaction vessel and the burner vessel . . . until Lewis realized that a fluidized catalyst could easily circulate between the vessels. Fluid bed cat cracking provided the United States with an abundant supply of gasoline during World War II and more than any other single piece of technology including the atomic bomb is responsible for our victory.

K: The United States has four Iowa class 45,000-ton displacement battleships, the New Jersey, now in service; the Iowa and the Missouri for whose use plans are in motion, and the Wisconsin, now in mothballs with no use planned. The minimum fluidization velocity for common sand is roughly one foot per second. Thus with a power consumption of 45,000 foot tons per second or 164,000 hp. one can fluidize enough sand to float a battleship. Iowa class ships as originally built have four shaft main engines of 212,000 hp. The only major modification these ships would need to sail across the desert would be the addition of rotary compressors to convert the ship's engine power into compressed air, and a perforated tube stretched along the ship's keel to distribute the compressed air into the sand beneath the ship.

L: With nine 16-inch guns an Iowa class ship is an object worthy of a paranoid's nightmares.

M: Unfortunately the prospects for getting the necessary funds from Congress to modify one of our mothballed battleships for amphibious operation are poor and the likelihood that Congress could keep such a plan secret is nil. Furthermore, the chief value of a battleship capable of sailing the desert, consists not in its use, or the public threat of its use, but rather in having our opponents imagine we possess this weapon whether in fact we do or not.

N: Several of the ships sunk by the Japanese at Pearl Harbor were subsequently refloated, repaired, and saw action later in the war. As discussed in attachment 1 the cost of sinking and refloating the Wisconsin would be modest, and with suitable preparation the damage would be minor and confined to things which would have to be replaced in any case if the ship is to be modernized.

O: While the Wisconsin is not pres-

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ently capable of moving under her own power, she can at nominal expense be made sufficiently seaworthy to move under tow. If that towing is done by submarine, the Wisconsin would appear to Soviet satelites to be moving under her own power.

P: Phase one of the Amphibious Battleship Project is described in attachment 2. To summarize, the Wisconsin will be taken out of mothballs and equipped with a lightweight camouflage superstructure, fully detachable, having the same visual and radar shape as the Wisconsin and casting the same shadow. In full view of Russian satellites the Wisconsin will be towed to Australia, apparently heading toward Sidney. On nearing Australia the Wisconsin will suddenly depart from its apparent route, heading toward a deserted section of the Australian coast. Nothing that is satellite observable will happen when the Wisconsin sinks, leaving the lightweight camoflage superstructure floating above it. When the superstructure is then towed around the Australian Outback by truck, it will, from the satellite's viewpoint, be the Wisconsin sailing the desert. With careful timing the superstructure can be returned to the point at which it left the Wisconsin, the ship refloated beneath it and the entire assembly towed away before KGB ground agents can arrive.

Q: The final phase of the operation is the planting of an appropiate leak, the denial that the amphibious battleship is real which will convince the paranoid Syrians, Libyans and Iranians that it is real. A suitable writer has been identified. He will prepare an appropriately revised version of this memo, improving the readability, adding a few mistakes and otherwise making it appear to be a work of fiction. Since this writer's work has previously appeared in *Analog*, and he was invited to submit fiction for a special issue of spoofs, we are assured that the planting of the story will be quite inconspicuous.

R: No great reaction on CIA's part will be needed to show the opposition that the *Analog* story touched a sensitive spot: a few agents in major cities excitedly buying all the newsstand copies of *Analog* and similar low key actions the general public will never notice. Indeed even the readers of *Analog*, being largely subscribers, will scarcely be disturbed. While the Editor of *Analog* may notice an unusual fluctuation in the distribution of magazine sales, he will have no reason to attribute this to anything except the popularity of spoofs. Even the Editor will never know the above was anything more than an amusing piece of nonsense. ■

● It is commonly agreed that the inventor of a weapon used to kill and maim must share in large measure the guilt for its thousands of victims. By the way, who *did* invent the bicycle chain?

Kelvin Throop

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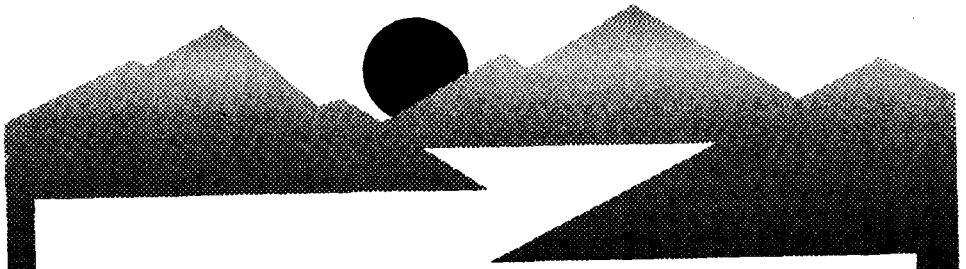

VITA

Are you looking for *realism* in a game?
Then forget about boards, throw away your joysticks, and get into the ultimate role-playing gaming system—

Vita is the world's oldest game. Enjoyed by billions through the ages, *Vita* predates written history, yet is fresh and original in its appeal. Its endless variations and constant surprises will provide *years* of challenging play.

Vita has it all—suspense, action, love, hate, drama, comedy, tragedy, death—the entire range of human experience. There's never a dull moment with *Vita*.

The *Vita* package includes the following:

PLAYING PIECE—Each *Vita* player is provided with a mobile Vita unit—fully controllable by the player—that is capable of interacting with the playing environment and with other *Vita* players.

PLAYING ENVIRONMENT—*Vita* is not limited to a couple of square feet of gameboard, nor to players' imaginations. *Vita* players are given access to a unique playing environment, consisting of a sphere with a total surface area of approximately 197 million square miles (71% of the surface area is covered by water.) Conditions in the playing environment vary widely, and the environment is enhanced by the presence of a variety of animal and plant life (plus a few surprises!)

RULES—As a part of the challenge of *Vita,* no rule book is provided. It is up to each player to learn the basic rules of the game on his own. Players set their own goals, and keep score by their own systems. Beyond the few basic rules already established, players can establish intricate sets of rules for various playing situations (suggested for advanced gamers only.) And in *Vita,* rules are made to be broken! (To make things interesting, there *are* heavy penalties for stupidity.)

Those who are already *Vita* gamers will be pleased to know that the new, advanced *Vita* modules are almost ready. Later this century, many *Vita* players will be able to experience high adventure as they explore the *Vita* playing environment's satellite—an airless sphere, eons old—as well as separate environments even more hostile and strange than the original *Vita* environment. (Note: Module availability may be delayed by subcontractor development problems with transportation systems. Only a limited number of advanced *Vita* players will have access to the new modules.)

Vita is for everyone—young or old, male or female, wealthy or destitute.

"If you haven't played *Vita*, you haven't *lived!*"

Vita is a product of PenUltimate Reality, affiliated with CompuOrganics.

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Arlan Keith Andrews, Sr.

CAPITOL PUNISHMENT

Even lawmakers are
subject to the laws of physics!

The Senate hearing room echoed with the thunderous gaveling of The Senator: people and press lowered conversations to murmurs as the white-maned elder statesman called the special subcommittee hearing to order. He paused, appearing to consult a large stack of obviously-important papers that lay on the table next to his microphone. Viewing the mob of media waiting for his every word, he savored the historical moment.

The Senator cleared his throat auspiciously and began the session. The star witness anxiously awaited the first question.

"And why do you think that Moscow just disappeared from the face of the earth, Dr. Shoemake?" The Senator asked with a tired grimace, his media trademark.

"Why, paper weight, sir," the slim, elderly physics professor answered, nervously wiping his eyeglasses. "Paper weight did it," he said apologetically, leaning back slightly in the uncomfortable chair at the witness table, unwilling to look The Senator directly in the eye.

The Senator glared back in pained surprise as the hearing room erupted into pandemonium. A flurry of senatorial gaveling and some appropriate shouting by the sergeant-at-arms brought order back to the proceedings.

The Senator spoke first. "Now let's be reasonable, Dr. Shoemake. Your reputation at MIT, your experience in NASA, and your three Nobel Prizes make you something of a reputable scientist." (The Senator had always had a good sense of understatement.)

"We brought you here as an expert witness to help us figure out why Moscow disappeared last month, leaving only virgin forest in its place, and why Beijing winked out a week later." The Senator ruffled sheets of reports in front of him on the table. Other junior senators followed suit, each ruffling and rustling stacks of obviously-important (and obviously classified) papers.

"Furthermore, Paris has begun to fade into some kind of black cloud, and London is starting to become transpar-

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ent down near the Houses of Parliament!'' His voice quivered even as it rose in pitch. He stood up.

''There's some kind of cosmic kidnapping going on, by God, and you sit there and give us silly answers about paperweights!'' He threw down one of his stacks of papers and shook his fist. The Professor cringed.

''Please let me explain, Senator,'' he said, trying to adjust his microphone volume above the ugly murmurs arising in the crowded hearing room.

''I said paper weight—two words, not one.'' The puzzled looks of the media representatives told him that he had not yet penetrated with his meaning. He tried again.

''The weight of paper or more properly, its mass, does indeed have something to do with these disappearances, and I would like to explain why.''

A hushed response from the crowd, a leaning forward of the Senators, and thoughtful reflection by the media indicated that he had their attention at last. Switching into classroom lecture mode, he began his explanation.

''My research has been into theories of black holes. You know what they are, of course.'' Everyone nodded. The Senator thought, *I will know: I'll have Staff draw up a report right after recess. No, I'll do it right now.* He motioned for an aide to come nigh and whispered instructions for a quick white paper on the subject.

''When enough matter collects in a small enough space, as in the massive core of a star, self-generated gravity pulls that mass into an even smaller space, until most of the void between the subatomic particles is squeezed out. At one given point in this process, the gravity becomes so strong that light itself can't accelerate out. Thus we have the name 'black hole,' and the star essentially winks out of our known universe.''

He surveyed the intelligent, motivated and distinguished representatives of the People. He also looked at the Senators: they were still interested. (A few whispered asides and other aides scrambled to retrieve reports for their bosses, subject: Political Uses of Black Hole Theory. The Senator was always ahead of his juniors. That was why he was ''*The*,'' not ''*a*.'')

''Well, you may have heard of my experiments aboard the Shuttles a few years ago.'' *Good point,* thought the Senator, *he's getting the public on his side. Everyone has heard about his microblack hole production*—the basis for the Shoemake Trash Compactor, which has ended garbage collection problems forever, as well as creating the bathroom revolution. *Don't know as I'll ever get used to toilets you carry in your pocket,* The Senator thought, *but at least my state made a lot of money when we found the microblack hole mining deposits. . .*

''Well,'' the professor continued, ''there were several side effects of microblack hole research that were made public only in obscure scientific journals. One of these effects, called the Mendenhall Effect (after my late vanished colleague who unfortunately was visiting Beijing last month), actually showed up in home appliances in the 1950's.

''It is a well-known phenomenon among users of clothes dryers that at least one sock will disappear during

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each drying cycle, and that it will be an odd sock, never both of one pair. This 'violation of pairity,' was first documented by Dr. Mendenhall. Poor Dr. Fred was conducting more experiments in clothes cabinets in the sweat shops of China when Beijing winked out." He tried to wipe a tear from his eye, smeared his glasses, and took them off to wipe them once again.

"As a result of thorough analyses of these phenomena, I have been able to deduce an overlooked corollary to Black Hole Theory: it is not the density of matter that matters, it is the amount of compression!" He stood up as if to take a bow.

"You mean," said The Senator in an unaccustomed flash of brilliance, "that stars and such become black holes because they weigh a lot to start with, but that socks and such get mashed out of existence just because they get squashed around in dryers and drawers?"

The Professor beamed. "Almost exactly, Senator! That's a very succinct summation." His hands swept out a gesture of approval, and he sat down to applause.

"And now just one more step leads to the solution of the mystery of the disappearing cities." He drew in a deep breath and threw a pile of papers on the table. "Haven't you ever noticed that the sheets on the bottom just disappear? We've all had that experience, but it has been ignored—until now."

As the crowd murmured in anticipation the professor continued. "And that's what did it, finally, in those other capitols—the stacks of paper in those bureaucratic cities just got so large, that the papers on the bottom just got squeezed into black holes. Black paper holes, if you will. In a centralized city like Moscow, there must have been millions of 'em, just waiting for the inevitable."

Glad finally to have got to the bottom of the matter, the professor sighed in relief. There were nods from all around.

Damn, it does make sense, thought The Senator, *why just the other day. . .*

"My work has shown that when enough of these microblack holes accumulate, they coalesce into larger ones. So, in the course of years, as adjacent stacks of paper get to the critical height and the bottom sheets 'pop' into black holes, a dangerous accumulation begins. The individual phenomenon isn't too profound by itself, but when you have many adjacent stacks near the critical height, then the little black holes attract each other and become a bigger one."

"A great bureacracy like the one in Moscow just naturally had to be the first to go. One day somebody tried to jam just one more report into a file cabinet. . . ."

"A file cabinet?" The Senator interrupted, "What's that have to do with stacks?"

"*Compression,* Senator is the key. Nature doesn't differentiate between vertical and horizontal stacks. After all, the earth's gravity is a minor force compared to the black paper holes we're talking about here."

The Senator was thinking furiously. *The black paper hole theory might be on track, at that. And the disappearance of Moscow hadn't been a bad thing, at all. We surely didn't mind it, and the rest of the Soviet Union seemed to be relieved.* They had broken up into about

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twenty little countries, and gradually their troops had trickled home from India and elsewhere in the last few weeks. *Only bad thing about it is, looks like those little countries might start being economic competitors.*

But save that for the campaign, he reminded himself. *There's something else about all this paperweight business, something else that it might be good for—Damn!* he thought, in realization, *If we'd only known this before. Why, I can just see it now—the Xerox bomb! Why. . .*

"To save Paris and London," the Professor intoned, "I would suggest that we advise them to disperse or burn all of those government records that they have accumulated. Maybe the process is reversible at this point in time."

The Senator nodded thoughtfully, *Mustn't forget that Xerox Bomb idea. Might come in handy, even though we don't have many enemies left, but you never know . . . there might be another Ayatollah like that last one, the one who wound up stuffed in the guts of a pig. . .*

He spoke to the Professor. "Dr. Shoemake, as we said earlier in this hearing, some signs of this phenomenon have been noted here in Washington. Are we in the same danger?"

"Yes, sir, we are."

"And how much time do we have?" He smiled and asked, "How much paper does it take?" *Oops,* he thought, *that might be classified information someday.*

"Sir, we are near critical mass right now, I suspect. We have simply got to cut down on the paperwork generated."

In the back of the room, the doors opened and a dozen aides began to push carts of boxes down the aisles toward the front tables. Their presence was barely noticed in the intensity of concentration on the Professor's testimony in this question of survival.

"But Professor," a junior Senator enjoined, "can't we just transfer all of the information to computer files? I mean, they don't have much mass, and. . . ."

The dozen aides, now unloading their boxes of reports, were joined by dozens of clerks and secretaries, each carrying file folders that were added to the growing stacks of papers. All of the Senators' requests were being filled unusually promptly; for once all of the copy machines had worked. (Murphy's Law had seemingly slipped up this once—but there *are* corollaries . . .)

The Professor was watching the clerks collect their paperwork behind the Senators, and was distracted in his reply. "Uh, er, I don't believe we can do that, either, Senator, because there is also a theory of other kinds of microblack holes in computer data, an *'information implosion,'* if you will."

He watched as the stacks of paper grew taller. He saw a black shimmering aura form at the base of one stack of paper, then another. *They were beginning to coalesce!* He stuttered, choking with horror. The Senator did not see the darkness forming behind him. He took the audience reaction as anticipation of his judgement on the matter.

"Professor, the members of the committee want to thank you for the testimony. Rest assured that we will take whatever action is necessary to save this great Capitol of ours." He stood up, his

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white hair and white suit in stark contrast to the dark face of Chaos looming behind. The audience and media could see through the transparent blackness: the Washington Monument was visible through the walls of the Capitol Building. Other transparent black masses could be seen, building up from around the Pentagon, the Hoover Building, and the IRS complexes.

But The Senator did not take notice; he picked up his great stack of important classified papers (and likewise did the several other committee members.)

The professor pointed at the Senator, choking out, "Don't, don't!" The black hole was now engulfing the entire end of the room, lapping at The Senator's feet.

The Senator, in obvious amusement at the famous Professor's discomfiture, pounded the gavel. "This hearing is recessed until tomorrow morning." With a grand gesture, he turned around without looking and deposited his papers on a fast-disappearing pile of

■

(ON GAMING)

(continued from page 129)

There are two levels of victory in *Space Trivia*. The introductory game is won by any player standing up and announcing: "I win." This is not recommended for team or tournament play.

The second level is to determine the winner by adding up the points of all the players after 10 turns, then comparing each player's individual total against the group total. If a player's number of points is the square root of the total points of all the players, that player wins the game. You check this total and compare it against each player's individual score every turn after turn 10 to see if anyone wins. Play continues until someone achieves that magic number.

In keeping with the SF theme of the game, there's a radioactive warning label on the box cover. I initially thought this was just another attempt at humor by the designers (who tell some really good jokes in their philosophy). But I discovered that there really are some radioactive elements in *Space Trivia*.

Since it may take weeks or months to complete a game and find a winner, the board was left out overnight on the living room floor.

Carefully walking around it one night on a late-show visit to the kitchen, I noticed a faint green glow emanating from the playing board. The pawns were irradiated just slightly to give off this green halo.

I instantly read through the rules book to check on the safety levels of the pawns, and happily found the level of radioactivity to be very low—just enough to produce this colorful effect.

The radioactive pawns may have been an unnecessary extra in *Space Trivia*, but I like it. By comparison, you're in more danger watching food heat up in a microwave oven. So consequently, I don't understand why that warning label was required.

Space Trivia is the true gamer's game. If you enjoy testing your memory of people, places, and events in the world of Science Fiction, and appreciate a really challenging game, *Space Trivia* can be a welcome companion on cold winter nights.■

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The Alternate View

THE RETARDING OF SCIENCE

John G. Cramer

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In 1961 the distinguished theoretical physicist Leo Szilard published a work of science fiction, *The Voice of the Dolphins*. A short story in this book, "The Mark Gable Foundation," described the creation of an endowed non-profit foundation for the specific purpose of **slowing the pace of scientific progress.** The originator of this plan was a physicist who had emerged from cold-sleep 200 years in the future to find that most of his training was obsolete and that science was progressing altogether "too fast as it is." He therefore enlisted the help of the world's wealthiest man in creating a non-profit organization to *retard* scientific progress.

His method of achieving this worthwhile objective was to create for each major field of scientific investigation a panel of distinguished scientists, which would meet monthly to award prizes and grants for the best recent scientific work. This technique, it was explained, would keep the best of the older scientists away from their laboratories and busy with unproductive meetings and travel. It would cause the younger scientists in need of funds to go for the "sure thing" certain to lead to publishable results, thereby channeling research in the direction of the safe, the fashionable, and the obvious—and away from more risky innovations and from seeking breakthroughs at the frontiers of knowledge.

As a matter fact, well before Szilard's book was published, his scheme was embodied in legislation by the 81st U.S. Congress with the creation of the National Science Foundation, an organization that has ever since played a key role in retarding scientific progress in this country. In addition, other new federal entities have been created including NASA, the National Institutes of Health (NIH), and the Department of Energy (DOE). These agencies have devised improvements and embellishments of the basic scheme that Szilard never dreamed of. They have achieved remarkable effectiveness in this forefront area of bureaucracy, consistently producing new and more cost-effective innovations in their important work of retarding the progress of science and technology. The U.S. Congress, not to be outdone, has also made significant contributions to this work.

But despite these efforts by a large number of individuals and organizations, it has become increasingly clear that more must be done. The dismaying upward spiral of scientific accomplishments and progress continues at an alarming rate. Scientific progress continues to crop up in unexpected and previously stagnant research areas. And it has become increasingly clear that an international effort is necessary. Other countries misguidedly expend a far

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larger fraction of their national wealth on science than does the U.S.A. And faster international communications of scientific results means that the older techniques for retarding international scientific progress through secrecy, ignorance, and duplication of effort are no longer working.

The time has come for a new initiative. I would like to announce the creation of a new scientific organization, the **American Association for the Retardation of Science and Engineering** (AARSE), dedicated to the retardation of scientific progress wherever it may occur, in whatever field, in whatever place. AARSE is created for the specific purpose of encouraging the retardation of scientific progress and of giving appropriate recognition to those who have done the most in recent times to further this goal.

Membership in AARSE is free and open to all. AARSE members are self-electing. One has only to make a photocopy of the membership card below

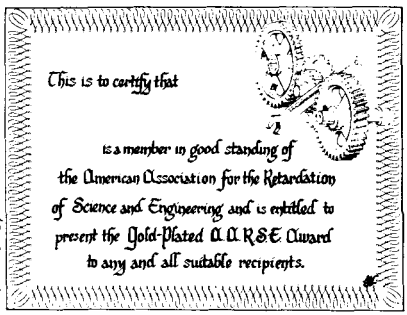
This is to certify that
is a member in good standing of
the American Association for the Retardation
of Science and Engineering and is entitled to
present the Gold-Plated A.A.R.S.E. Award
to any and all suitable recipients.

Illustration by William R. Warren Jr. 1984

and fill in the details to become a card-carrying AARSE member. It is the prerogative of all card-carrying AARSE members to present the **Gold-Plated AARSE** Certificate of Meritorious Accomplishment to any and all who are worthy of recognition for their work toward the goals of the organization. The Gold-Plated AARSE certificate is printed on the following page, and may be photocopied and used for appropriate presentation by all card-carrying AARSE members.

But in addition to these important contributions to the awards process through the initiative of individual members of AARSE, there must be overall recognition of special and significant accomplishments in the retardation of science and engineering. We will therefore use this Alternate View column for the presentation of the initial Gold-Plated AARSE awards. It is hoped that this kind of national recognition will be effective in furthering the goals of the Association. These awards are expected to become an annual feature of this column.

At the mention of the phrase "retardation of science," a single name comes to mind: that of Senator William Proxmire of Wisconsin. His inspiring work in retarding progress wherever it may occur through his position on the Senate Appropriations Committee is very widely known and appreciated. But to my knowledge he has never been properly rewarded for his work. Senator Proxmire has pioneered an entirely new technique of retarding scientific progress, the "Proxmire Cheapshot." This innovative method involves identifying some legitimate scientific research effort which has a slightly comical title (e.g., "The Sex Life of the Screw Worm Fly" or "A Search for Extraterresterial Intelligence"), and using the title to hold the project, its originators, and its funding agency up to ridicule,

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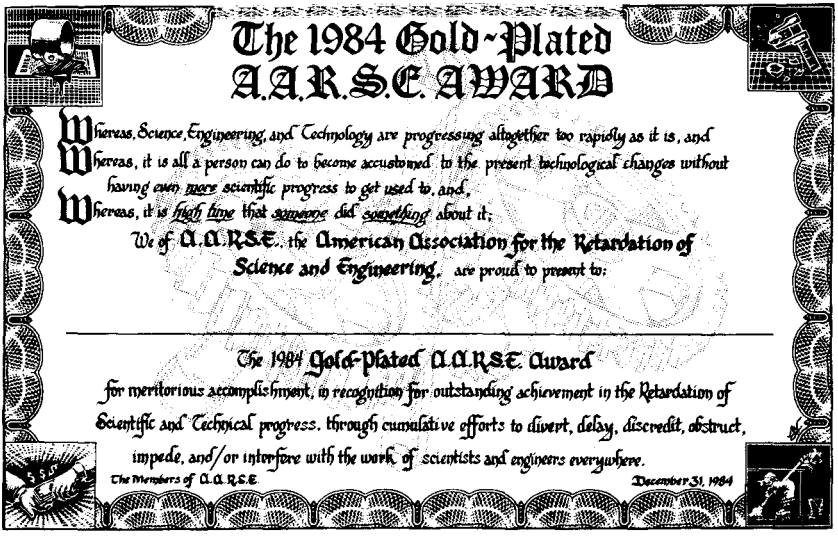
The 1984 Gold-Plated
A.A.R.S.E. AWARD
Whereas, Science, Engineering, and Technology are progressing altogether too rapidly as it is, and
Whereas, it is all a person can do to become accustomed to the present technological changes without having even more scientific progress to get used to, and,
Whereas, it is high time that someone did something about it;
We of A.A.R.S.E. the American Association for the Retardation of Science and Engineering, are proud to present to:
The 1984 Gold-Plated A.A.R.S.E. Award
for meritorious accomplishment, in recognition for outstanding achievement in the Retardation of Scientific and Technical progress, through cumulative efforts to divert, delay, discredit, obstruct, impede, and/or interfere with the work of scientists and engineers everywhere.
The Members of A.A.R.S.E.
December 31, 1984

Illustration by William R. Warren Jr. 1984

thereby completely disrupting the project and greatly advancing the cause of retarding scientific progress. He has applied this technique with remarkable effectiveness over a number of years, and even lawsuits from disgruntled victims have not deterred him from advancing our cause. It is therefore with profound emotion that I present to Senator William Proxmire the first Gold-Plated AARSE award of 1984.

The second award also concerns a new technique. The cuckoo bird is well known in the avian world for its behavioral maneuver of laying eggs in the nests of other birds, with the result that its hatchlings push the weaker offspring of the parent hosts from the nest. A brilliant adaptation of this technique has been devised by administrators of Columbia University and Catholic University (CU-CU) with the assistance of the Washington D.C. lobbying firm of Schlossberg-Cassidy & Associates. It has been executed with devastating effectiveness on the floor of the House by Speaker Thomas P. (Tip) O'Neill. The "CU-CU Maneuver" which they have created deserves recognition as a new and powerful technique for retarding science.

In this case, a $10 million "nest egg" starting construction of $34 million worth of new buildings on the CU-CU campuses was unexpectedly "laid" in the DOE budget, preempting money intended for the support of ongoing research in nuclear and particle physics (fields which are clearly progressing altogether too fast as it is). We of AARSE commend this diversion of resources from science into real estate, bricks, and mortar. We are pleased to present Gold-Plated AARSE Awards to the administrations of Columbia and Catholic Universities, to the lobbying firm of Schlossberg-Cassidy & Associates, and particularly to Tip O'Neill for outstanding service in the retardation of scientific progress. We note that other

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universities have been quick to adapt the CU-CU Maneuver to their own campus construction projects, promoting the retardation of scientific progress in a number of other key areas.

Finally, we wish to honor those who have been able substantially to retard scientific progress by fuzzing out the distinction between science and non-science. There have been several notable efforts in this area. For example, there has been a particularly effective campaign to associate the word "research" with the act of looking up some bit of information in a book where it happens to be written down. Thus: "I will have to get back to you after I **research** that in the *World Almanac*." Equally important is the effort to apply, without regard to training or education, the term "engineer" to anyone who gets his hands dirty in his work. Thus the janitor becomes a "Building Maintenance Engineer" and the garbage man a "Solid Waste Engineer." But perhaps the most significant effort in this area goes to those who have been attacking the meaning of the word "science" itself by labeling certain fundamentalist Christian beliefs with the appellation "Creation Science." This brilliant application of the technique at a stroke confounds the distinction between science and religious dogma and brings scientific research into direct conflict with religion in a way that has been sadly absent since the time of Galileo and Darwin. For this outstanding achievement in the retardation of science we are pleased to present Gold-Plated AARSE Awards to the Institute for Creation Research of El Cajon, to the State Legislatures of Arkansas and Louisiana, and to clergyman, laymen, and laywomen everywhere who have contributed to this massive and effective effort.

Due to the space restrictions of this column we are not able to give public recognition to the many other individuals who richly deserve to receive a Gold-Plated AARSE Award for their contributions. However, we are confident that the active members of our organization will be able to give recognition to most of these individuals on a personal basis in the coming year. And we will be able to make a whole new set of Gold-Plated AARSE presentations in 1985. ■

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The CU-CU Maneuver: *Science*, p. 1024, 3 June, 1983.

(Human Moments in Science, continued from page 97)

In 1918 physician Oliver Kloggeron published an immense book of six thousand pages entitled *Theoretical Surgery*, describing the changes that would be required in standard operations if people's insides were put together differently. Disappointed at poor sales, he vanished in obscurity (it was later rumored that he died in an elephant stampede in Mozambique but that has never been verified). Until recently it was thought there were no copies still in existence, but two have just been discovered. One copy was found at the Smithsonian, itself, where it was being used as a doorstop in a third floor

(continued on page 182)

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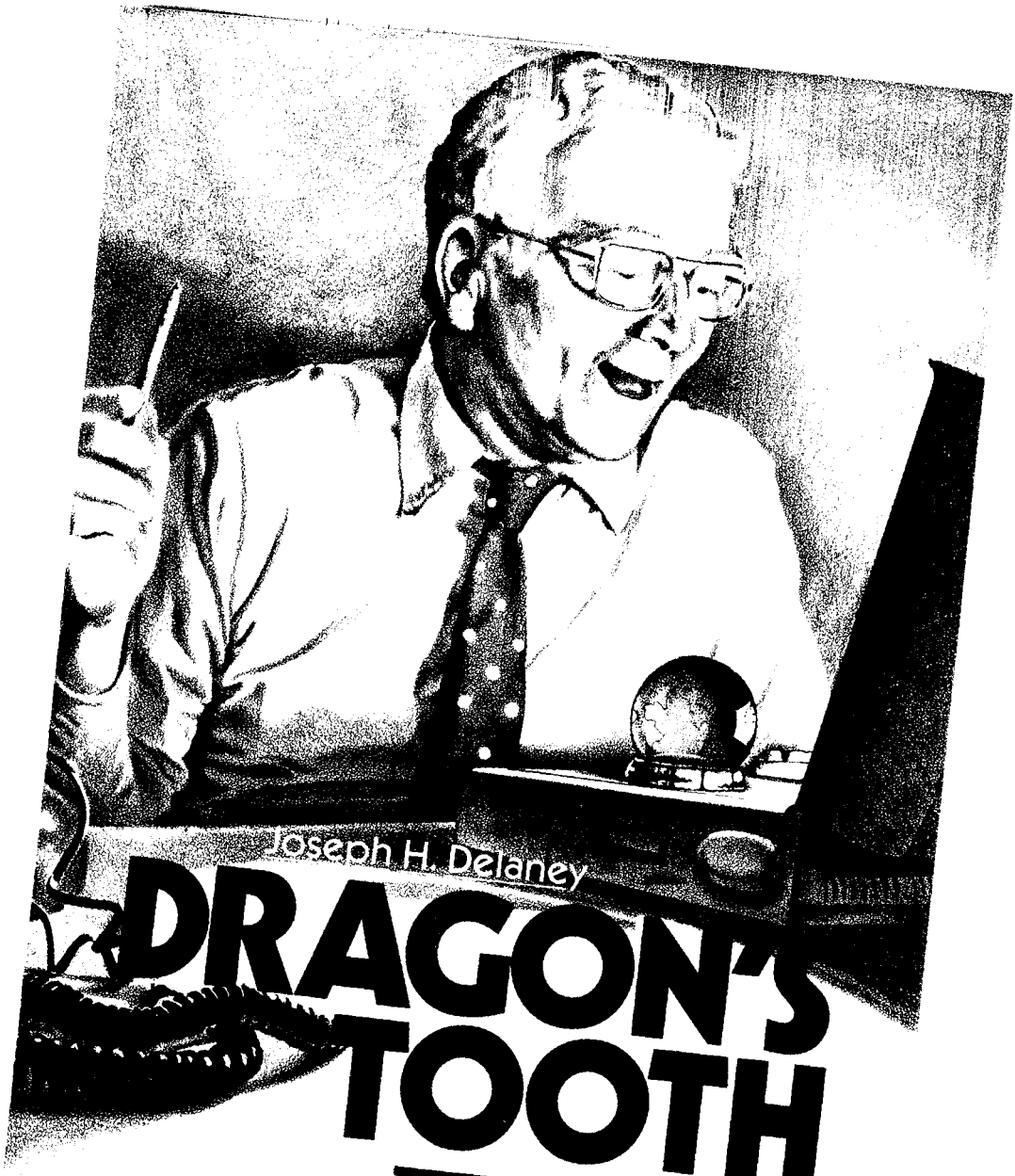

Joseph H. Delaney

DRAGON'S TOOTH

Clarke said, "Any sufficiently advanced technology is indistinguishable from magic." But a practical man can still recognize it as a tool—and maybe even think of a new use for it.

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The creature drank but little of Juan de los Santos's precious water, and it spilled much. Curiously, though the loss portended grave privation for him and Hermalinda, Juan was not concerned. The alien eyes, like all other eyes in Juan's experience, were wells of emotion. They blazed up briefly in profound gratitude, then suddenly dulled; and from the depths of the creature's body there rose a little sigh barely audible above the desert wind.

Juan drew closer, half anticipating that words might follow. They did not. The alien's head receded into its cracked helmet, into the oozing pinkness of its blood, and moved no more.

For a time Juan did nothing, but watched until he was certain it was dead; and then he did what he would have done for a man who died among strangers, far from his home, and without the comfort of his own kind.

The grave was shallow, though broad, since Juan had nothing with which to dig except his hands and a flat stone and such brittle sticks as he could find nearby, but it would frustrate the efforts of El Buitre, the buzzard, who circled slowly overhead waiting to feast.

Juan knew that he was himself potential meat for them; that the fierce noonday sun, aided by his exertions, sucked the lifegiving fluids from his own body; that the hot wind which coated him with grit from the digging carried a part of his life force away.

Still, he did not falter, nor slacken his effort. He knew that this was not a man, but also that it was not an animal either.

He took the two halves of the alien's capsule, split like some great mishapen egg, and propped them with stones so they would not fall. He lifted the being and placed it on the molded seat which formed the bulge in the capsule's bottom. Rigid in its curiously jointed suit, the creature sat, as it might have in life, staring blankly out its faceplace. This Juan closed, because he could not close the lidless eyes, and then he pushed the halves together, mounding them over with earth torn from the bank above.

Atop the mound he placed stones, so that in time, when the rains came and the arroyo once more would briefly fill with water the desert weeds could grow in shelter from the wind and cover the grave.

This done, he prayed over the grave. He did not know whether or not the being possessed a soul, or believed in a hereafter, but such beliefs were strong in Juan and he supposed it did.

Juan turned, looked out across the blackened sands on the sunward side of the arroyo, where the land looked burnt, where fire had passed over them, leaving some dark, sticky ash which clung to them. Perhaps, he thought, a part of the creature's vehicle had burned away, for it must once have flown from another world to this abjectly desolate sand and scrub which he had yet to cross. Though he was himself an ignorant and illiterate man he knew such things were possible; he had watched this happen with his own eyes.

Reluctant to trample through the sticky ash again he scrambled up the far bank of the crumbling ditch, into the dry and lifeless tangle of weeds and creepers which clung to his feet and made every step a labor. He turned toward the next arroyo, where Hermalinda waited, resting in the shade of its bank on a soft

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bed of sand. He had been too long away from her already, and she would be afraid.

He tripped, a foot ensnared by something concealed in the brush; fell forward, face plunging into the twigs and brambles, hands extended to break his fall.

He landed on the ragged edge of something springy, something studded with bulges and knobs. Rising, he brushed the twigs and sand from his beard and picked it up. It was a shard of the same material as the capsule, the part missing from the wall in front of the little seat where fragments of the same substance had clung around the tortured heads of flat rivets.

Juan supposed this to be the capsule's control system, and picked it up. Then he carefully probed the grasses with his foot to see what had tripped him.

It was a box, with a handle of sorts molded into its top. It was just the right size to have fit into the cavity under the creature's seat. Juan picked it up, found it was light enough to be easily carried, and took it and the shard with him, back to Hermalinda.

At the sight of him mounting the bank, she rose on one elbow from her bed of sand, peering over her swollen belly to see what it was he brought. "Juan, you were away so long. What did you find?"

He jumped into the ditch, taking shelter in the shade of its bank, and dropped his burden beside her. He did not exactly lie; still, he told less than the truth, knowing this would disturb her less than knowing all. "I have buried the pilot of a crashed airplane. I think this is his luggage. He will not need it anymore. Perhaps we might."

Hermalinda's eyes drifted to the plastic jug, suspended by a cord around Juan's neck, noting with dismay that it was nearly empty.

"He lived a while," Juan said. "I gave him a drink."

Hermalinda was less than completely understanding of this explanation. In some ways, Juan was a fool. And to waste water on a dying man seemed to her a foolish act when they themselves still had two thirsty days ahead of them and seventy kilometers of the cruel Chihuahua desert to cross.

She would not, of course, anger him by saying what she thought. He would recriminate, and she had herself behaved foolishly, insisting as she had on making this perilous journey on foot in the first place. This had not been their plan. They had been headed for Ciudad Juarez, not El Provenir. But her brother's rattling old truck had broken down on the highway, north of Villo Ahumada, where on the map the distance had appeared so slight she had not guessed the trip across it would be so harsh and dangerous.

Now she knew. And perhaps, she told herself, had she always known she might still have made the same choice, for her child. He would not be born, as they had been, a citizen of this impoverished land. He would be born north of its border, in the U.S.A., a citizen of the greatest nation on earth—if they could survive this journey.

Juan fiddled with the suitcase, searching for a way to open it. He should be sleeping, he knew. When the sun fell, and the sands cooled, he would need the

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strength which rest would give him. But he had met many mysteries face to face today and he knew there was at least one more ahead of him.

At length, persistence was rewarded. Pressing downward on the lid while grasping at the handle produced a satisfying click, and the lid sprang upward a fraction on its hinges. Juan raised it and looked inside.

He was confronted with still more mysteries then. And he knew that these were mysteries he would never solve. The case was full of little molded compartments, each one containing an instrument of some sort whose use would be beyond the comprehension of a man such as he, even if he knew what it was.

With mounting disappointment, Juan repacked the case, just as it had been when he opened it, and laid it next to the shard and the water jug. He would take it with him when they left, and perhaps somewhere he would find another who knew what it was, and would pay to have it.

Old bones should not attempt audacious leaps, lest feeble muscles coil and kink, and summon pain, and raise its level beyond endurance. These were the sage thoughts that rushed through the half awakened mind of the old man, whose peaceful slumbers were so rudely disturbed by the pounding on his door.

Wincing, hesitating to move again but aware that he must, Ronald Degan raised an arthritic arm and extended it to the night table, where knobby fingers probed for the switch on the base of the lamp.

He found it, twisted it, and blinked against the harsh brilliance that flooded out.

The pounding stopped. Whoever was at the door had known its purpose had been fulfilled when he saw the light.

Degan groped some more, located his glasses, and put them on, pausing but a moment to rub grit from the corners of his eyes. Now fully awake, he turned to the next task: to get aching legs over the edge of the bed and firmly planted on the floor–no small feat considering his age and infirmity.

Presently that, too, he was able to accomplish, and with each step he took thereafter the task became easier. By the time he reached the door he was as limber as he ever got.

He opened the door. A man and two women, one of them leaning heavily on the man, waited in silence. He recognized the other woman: Concepcion, the partera, or midwife; and he knew at once his night was just beginning.

Concepcion was an important person in these parts. She knew her business, having been in it for many, many years, and having brought a large percentage of the area's population into this world. She also knew the limits of her skills and when these were exceeded Degan would find her at his door, generally, as now, in the wee hours.

"Come in, Concepcion," he said. "Bring her to the back. You know the way."

She did so without comment, leading the couple behind her, switching on lights and finally directing the man to place his wife on the table.

"She bleeds, Doctor. She has pain, here." Conception pointed to the groin. "But it is not yet her time."

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"Have they been in the desert?"

"Four days, Doctor. They crossed over tonight."

"I see. When will these girls learn they can't do that when they're this far along?"

Concepcion shook her head, but said nothing.

Preeclampsia was not rare in Degan's present practice. He saw it all to often since he had come here, to a climate which while beneficial to his own arthritic condition, was decidedly hostile to the stability of electrolyte values in the gravid female body.

He knew what to do for it, and he began immediately, starting her on an I.V. drip laced with a mild sedative. While he hoped this alone would restore the balance he took no chances, and began the usual tests. He found what he expected to find, thus confirming his diagnosis, but was encouraged that he had caught it when he did.

"I think she'll be all right," he told Concepcion, "but she really ought to be in a hospital."

"I know. But they are afraid, and they have no money to pay."

Degan had expected that part of it too. He knew the couple were mohado, or wetbacks, and that like most who arrived by that route they would risk nothing that might result in their being sent back. At this part, they trusted only the partera, not him, and they did not trust even her that far.

"Tell the man to make himself as comfortable as he can, Concepcion. They will have to stay until the baby is born."

The partera did this, then she left. By that time the old man was dozing in his chair on the other side of the room.

"Another one? And you were up all night again, weren't you?"

Degan cringed. Consuela McGuire had a tongue that cut like a rusty razor, and she had a temper to match it. It seemed to Degan that nature had taken the worst of both her genetic heritages and combined them into one godawful fireball.

But he needed her. At 77 years of age he should not even be trying to practice medicine, and without her he could not even have made the attempt. A matronly widow, she was his part-time nurse, secretary, accountant and keeper, and this last role she took especially seriously.

"One of these days, Dr. Degan, you'll get in real trouble over something like this; you watch and see."

"What was I supposed to do? Throw them out?"

"Send them to a hospital."

"She'd never have gone. She'd have died first."

"Someday one of these girls will die here, and then what?"

"She'll be all right. It's under control. She's getting better, and it's only for a day or two."

Consuela glared at him with outrageously inconsistent green eyes, framed by a wreath of ravenwing hair. Red lips parted; white teeth emerged, set in a jaw determined yet stymied. Then, the expression softened. Eventually, it always did. "Oh, what's the use. You'll keep it up until you either go broke or go to jail."

Consuela gave a sigh and turned

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away, to start in on her other work. There was plenty of that: mail to answer, books to keep, bills to pay—always bills.

She knew Degan's financial situation would soon force him to close his clinic anyway. Maybe that was the best thing that could happen, she thought. Only, what would happen to him then, and what would these poor people do?

For five years he had represented the only local source of medical care in this small border community: a community where few patients could afford to pay him at all, much less in money. Most did manage something: produce, sometimes a chicken, sometimes token labor around the clinic. She felt bad about accepting the small salary he paid her. She didn't really need it. She had a full-time job nursing at the hospital in Fort Hancock, and would gladly have donated her off-hours to his cause, but she knew he would never have it that way.

So, silently but bitterly she gave up trying to talk him back into retirement, to preserve what might be left of his once considerable fortune, and attacked the day's correspondence.

There were some utility bills, for which she wrote checks in payment, and placed in envelopes. There was a form from the department of labor: a long complicated questionaire, totally inappropriate to Degan's operation. She gave it a cursory examination, discovered that while it pretended to be mandatory it really wasn't, and threw it away.

Next, she came across a buff envelope, containing a computer printed form. This one was from the I.R.S. "Notice of possible adjustment," it said. She read further. It seemed to have something to do with her own withheld salary, and it indicated that a review of the records had resulted in additional tax liability.

Consuela fumed. She had been through such experiences before. It usually meant they had lost something she had sent them, but always the burden was on her to prove it. She sighed, dragged out her ledgers, and spent the next hour rechecking. Finding nothing amiss, she wrote a long explanatory letter, in the simplist kindergartenese she could manage, and stuck the envelope containing it into the pile to be mailed on her way home. Next, she went through the receipts, which was hardly worth the effort. $154.00 was collected, applied, and placed in the deposit bag, again to be banked the next day when she got off work at the hospital.

She made a note to herself to finish the preparation of tax forms due the following week, when the quarter ended; and traded her secretary's hat for a nursing cap.

This employment was brief, since there was only one patient—the pregnant woman—with whom Degan needed any help. The others, who popped in randomly throughout the afternoon, he took care of by himself.

She traded hats again, retiring to the kitchen, where she put supper for Degan and his guests into the oven. Finally, after tidying up his makeshift lab, she gathered her belongings, said goodnight, and left. At the time, this was merely the end of another routine day, in a series of routine days that would last as long as Degan's money held out. She did not believe that the moment of

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truth would be very much longer in arriving. She was right.

In two days Hermalinda had recovered. She had neither pain nor bleeding. She was healthy. At the end of the week she was also a mother, having given birth to a healthy son who was appropriately named Ronaldo, in honor of the man who had delivered him.

The day after that she was traveling with Juan and Ronaldo in search of her fortune, leaving early in the morning before daylight in case someone might be watching.

Degan was slightly miffed that they had not said goodbye, but he was used to their timid ways, and he knew many were embarassed because they had no money and could not pay.

That was before he looked into the empty room and saw the case and found the note. The note was not elaborate. It contained only his name—no small accomplishment for people he knew were illiterate, and who must have taken hours to painfully copy the letters off his waiting room door.

He looked at the case, then behind it. There was something else, leaning against it, which fell when he grabbed at it. It looked like a fragment of plastic, broken irregularly at the edges and studded with bumps and bulges. Strange symbols surrounded the bulges, symbols that looked like nothing he had ever seen before, yet regular, clearly molded into the plastic's surface, and positioned as though explanatory of its other features.

Straining, Degan picked up both the shard and the case and carried them to his desk where he could sit down while looking. He wheezed around to his chair and grasped the handhold on the case, trying to raise the lid so clearly outlined by the gap around its perimeter.

In time, less time than Juan had taken, but not much less, he too discovered the secret of release. But unlike Juan he was not merely stymied by what he found; he was baffled. He knew instinctively that this was an instrument designed to operate electrically, but which was disassembled. And he could find neither the source of its power, nor its purpose, nor a way to assemble it.

When Consuela came in he was still trying, parts of the object scattered on the top of the desk in front of him. She found him almost entranced.

"What is that thing?" she asked.

"I don't know. I've been trying to put it together all afternoon."

"What about the patients?"

"There aren't any today."

Consuela grunted. Such things did happen, though rarely. The clinic was like anyplace else, with either feast or famine. "Where did you get it?"

"They left it; the de los Santos. They were gone when I got up. This was in their room."

Being practical, Consuela had practical thoughts: "What if it's hot?"

"Huh?"

"Hot—caliente—stolen. If you tried to sell it . . . "

" . . . I don't even know what it is."

"Doctor Degan, why don't you retire like the other old men do? Must you work yourself into the grave?"

"I'm not old enough to retire. Besides, this is not work; this is play, like a puzzle. I wouldn't think of selling it."

Consuela wandered off for a while,

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busying herself with tasks around the clinic. Later, she came back, bearing a flimsy looking document in her hand. "This came in the mail. It's from the government—the tax people."

"What do they want?"

"I am not sure. I do not understand it."

"Let me see." Degan reached up and took the paper. After examining it he asked, "Do we owe $276.54?"

"I don't think so. The notice says no tax is due. The money is a penalty."

"For what?"

"I do not know. They say a form has not been filed and the penalty applies."

"We didn't file it?"

"Yes, we filed it. I have a copy."

"Send them a copy, then."

"I did, but I thought you ought to see this."

"Well, it seems to me that if we didn't do anything wrong they'll leave us alone." He handed the paper back.

Consuela took it, and walked off shaking her head. She knew better.

For the next few days Degan found little time to tinker with his puzzle. A mild outbreak of roseola had occurred. Since the symptoms were highly visible in infected children there was a corresponding stampede of alarmed mothers through his office doors.

As the epidemic wore on word of its relatively innocuous course spread, as did the doctor's recommended treatment. Eventually, the crisis ended, and there was a little more spare time available.

Degan found himself with one afternoon of relative freedom and decided to get the case out again. Consuela had already left, thus giving him one less distraction to contend with.

He laid the parts out on a table back in the lab and studied them carefully for the umpteenth time. There were three large pieces.

The first of these was a flat plate, dull metallic on one side and milky white on the other. It was bound by a metal band all around its 3/4 inch thick perimeter. On the dull side was a group of thirty tiny holes, arranged in a regular pattern, and surrounded by a shallow ridge. The milky surface was cut or etched with thousands of tiny parallel grooves, which caused it to refract light in a rainbow pattern.

The next object looked like a pocket calculator, though it had no keys and no dial. It did have what Degan suspected were pressure sensitive panels —twenty of them, to be exact, each bearing a strange and indecipherable raised symbol in one or another of four colors. The back of this device contained not holes, but thirty tiny pins. He had counted both the holes in the plate and the pins on this device many times, and his first impression had been that they were a match. They weren't. The dimensions were wrong.

The third object was a translucent sphere which rested in a socket of the same material, so that it could be rotated freely on any axis. Tiny regularly space circles, both horizontal and vertical, ringed its surface, so that it resembled a geographical globe without any maps on it. Its base was also perforated on its underside with thirty small holes, and again, these proved to be spaced slightly differently from those on the other two pieces.

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Degan, frustrated almost before he began, tried to think what might possibly be missing, other than the obviously absent power source. Each of the three pieces he had fit into a corresponding cavity inside the case. There were no empty cavities, therefore he had all it contained.

Or so he thought, until he looked at the case more closely. An ancient tale came to mind—The Norwood Builder—where Doyle's cunning Sherlock Holmes had looked at a slightly larger container and asked himself if he really saw what he thought he did.

Taking this cue, Degan considered the case's volume in relation to its contents, and then he began to feel around the inside of the overthick-appearing lid.

A previously hidden springloaded catch responded to the probe and the lining then dropped. Inside were two banks of pins and a pattern of holes. In seconds, Degan had them matched.

With the positioning of the last one light filled the sphere. A "+" appeared, projected internally at its pole. At the equator, a dot appeared. Degan began pushing panels, confident now that not only did he have the thing properly assembled, but that it contained batteries.

But no matter how hard he tried he was unable to get it to do more. For hours, he fiddled with it, dismantling it, then reassembling it; punching buttons in all kinds of different combinations, rotating the globe. All with no success.

Success, when it did come, was accidental, coinciding with his final gesture of defeat. He had been in the act of taking it down to put it away when he rotated the globe vertically on the gimbols. For an instant before the contact was broken the plate had flashed light, causing him abruptly to pause, and freeze his motion in mid-stroke.

Without deviating so much as a millimeter he eased the globe back into its receptacle. It remained dark until he gave it a tiny push, up and down, and then the plate glowed again.

Degan leaned back and considered this phenomenon. At last, he had activated the device, but he still could not get it to do anything. He decided to try pressing panels again.

There were instant rewards for this effort. This time, the globe gained additional features; features which surprised him with their simplicity. The translucent globe became a physical model of the earth, as it might be seen from space, complete with cloud masses. Half of it had become appropriately dark.

So that was the secret: to project, the globe must be positioned to coincide with the axial tilt of the poles—only—what was the purpose of it all? What was this thing used for?

It occurred to him that it might be exactly what he himself had called it when Consuela asked the same question: a game. There were all kinds of computer games around these days. He didn't know much about such things but he could see why people were so fascinated by them.

Very well, he would play. He got pencil and paper and began trying various combinations of buttons, carefully recording each symbol he manipulated and the response it produced. He soon

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discovered that several of these could move the dot around on the globe. He concluded that the dot was the game's cursor. A little practice made him quite adept at positioning it. He could now move the dot at will and with great precision.

Gradually, he began to understand the mechanism a little better, noting that everything it did seemed to follow a sequence. Each step must be completed before the next could be undertaken. His enthusiasm mounted and he found he must carefully discipline himself to maintain the order of the experiment.

But beyond the movement of the cursor around the globe's surface he had little success with the rest of the panels —until the pattern brought him to the one on the lower end of the module. It was flat and bar-shaped. He had tried it before he discovered how to move the cursor, and it had done nothing, but now it produced a spectacular result when pushed. It projected a part of the globe onto the plate, which lit up from the interior and produced a fuzzy picture like an out-of-focus TV image.

Experimentally, Degan moved the cursor. The image on the plate moved with it. He tried some other previously inert panels and found that they too, now produced effects. One increased brightness. Another controlled focus, so that he was able to reduce or increase the fuzziness by constant pressure on it. One push set it off in one direction, the second in the other.

But Degan's most astounding discovery came with his trial of the next panel up from the bar; he found that, operating with the same sequence of pushes, the image on the plate would enlarge or reduce. Most interesting, he thought.

Still, he could not fathom the device's purpose. If it was a game, where were the targets, and what was he supposed to use to shoot them down? His notes indicated there were no more panels he hadn't tried. He felt let down.

Degan went to the kitchen and got himself a cup of coffee. He returned and sat there sipping it and looking at the device. The functions he now understood did not seem to justify either the elaborate hardware, or the obviously advanced technical skills which went into the machine's construction. There had to be some purpose to it. What was it?

He put the cup down, and almost by default selected the enlargement panel, which he then pushed steadily. The image zoomed back to its maximum position, the globe appearing on the plate as it might be seen from orbit. On its surface the cursor dot pulsed red. Degan pushed a second time. It zoomed again, enlarging until grainy masses of color appeared. He stopped, reversed the direction, then reversed it again, this time maintaining steady pressure for as long as the plate responded.

As he watched, he began to see more than a simple maplike image. As the features grew in size so they grew in realism. Dun colored ridges exploded into realistic looking mountains, complete with realistic boulders and realistic vegetation.

The image continued to enlarge, and Degan's finger remained firmly planted on the panel. He could move neither it, nor his eyes. Both seemed frozen into immobility.

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He released the pressure when he saw the ants. The ants were giants on the plate. Around them what must actually be grains of sand appeared as piles of giant boulders. What were straws appeared as massive logs.

Fascinated, he stared at them as they moved about, singlemindedly performing the tasks to which instinct drove them. After a moment Degan glanced at the globe, noting the position of the cursor. It rested just on the light side of the terminator, which at that time bisected the west coast of the United States. He looked at his watch: 6:30 P.M., Mountain time—5:30 Pacific time. He glanced back at the plate, noting the length of shadow, and gasped. The two coincided. He was not looking at a stored image. Moreover, it was apparent on comparison that the cloud patterns had changed. This was not a static system; it was dynamic. This was real.

As proof, he waited and watched for the next hour. The shadows lengthened, and darkness fell. At the same time, the terminator line on the globe crept inexorably westward.

Degan now felt an abnormal chill course through him. This could not be a game. Its purpose could not be mere entertainment. It was something far more grim than that. His own possession of it now began to trouble him. The possibility that de los Santos had stolen it now seemed reasonable. How else could he have acquired it?

And that created another dilemma for Degan: possession of stolen property was a crime. What if somebody found out he had it? What if they didn't believe his acquisition had been innocent?

He began to sweat as he searched his reason for a solution; tried to imagine some set of circumstances where an impecunious and ignorant man like Juan could have gotten his hands on a thing like this in any lawful way. He couldn't. His reasoning inevitably led him back to the conclusion that the man simply came across it somewhere and walked off with it.

But where? Out in the desert? He knew that the couple had come from someplace in the interior of the Mexican state of Chihuahua and had arrived at his house only hours after crossing the river. He would have thought they hadn't been in the country long enough to get into trouble.

By now, his imagination strongly suggested that the device was receiving signals from an orbiting satellite, or possibly from several of them, which meant the theft would involve the government, which was the only body likely to possess such a thing. And *his* government, he knew, was not especially tolerant of the disappearance of its property or toward people who might be responsible for its disappearance. He had to find a way to get it back to them; one that wouldn't get either him or Juan into any more trouble.

Degan resolved to find out as much as he could about Juan's travels. There was only one person he knew of to whom Juan might have confided: Concepcion. He went to his office and called her.

She tried hard to help. She answered all his questions without hesitation. Yes, Juan and his wife had just arrived when they were brought to Degan's clinic. Yes, they had the case then, and had left it with her. Yes, she had asked

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what it was. No, Juan had not told her. Juan didn't know; he had found it in the desert on the Mexican side. No, he had not said precisely where. No, she did not know where he and Hermalinda were now; she presumed they had gone to El Paso, where he had relatives. No, she did not know the relatives' names. Degan thanked her and hung up.

So, that simple phone call had changed the entire picture: it permitted Degan now to form a new theory, a theory which pretty well eliminated any danger to himself. He could picture the situation clearly—a couple wandering across unfamiliar and desolate territory happen on a crashed fragment of one of the many satellites in orbit, in which an instrument case miraculously survived undamaged. Who would know that it had landed intact? Who would therefore miss it? Who could possibly come looking for it?

Degan saw it all now, very clearly, and felt extremely foolish over his display of panic. He was glad he had been alone when it had overwhelmed him. The United States government had never owned the device; some other country had. That was why the thing was marked in such strange symbols. American scientists would have used the familiar English equivalents.

So, its manufacturers were Russian, or Chinese, or Indian, or some other country with a different system of writing. It didn't matter to Degan so long as he understood the meaning. He had a new and interesting toy that made him feel like a child again, and he enjoyed the feeling. Only one thing worried him now: that its batteries would fail and he would have to find a way to replace them. He did not know how.

Consuela sat at her desk, having just opened the day's mail and been treated to still more bad news. She didn't know what to tell Dr. Degan, or even how to tell him. He had become strangely uncommunicative lately and she found herself growing more and more pessimistic about the state of Dr. Degan's health. She was used to his moaning and groaning over the condition of his bones; used to doing for him the things his aged musculo-skeletal system would not permit him to do for himself.

But now she was convinced he was beginning to rely on her to do his thinking for him. He seemed to be falling into senility. He still took care of his patients with the same competence as always. Nobody came in bleeding and went out without treatment, but her observations disclosed a certain shortness with them that had not been there before. He had always been congenial, with a good bedside manner, and always he had been a talker, even when it was necessary for her to stand by and translate.

He was even a little short with her lately. He never hovered over her anymore, watching her work, as he formerly had. He did not seem interested in the operation of the clinic.

Instead, at every opportunity, he retreated into the lab and assembled his toy, and thereafter would tinker with it for hours, muttering, giggling and chuckling to himself.

Consuela took this as a bad sign. Moreover, she resented the way he excluded her from the lab when the thing

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was on. He never told her to get out, but he took care to intercept her the instant she appeared in the doorway, and he had it positioned so that she couldn't see its screen from there.

She didn't know what he was watching. Perhaps he watched nothing. She had only seen the thing demonstrated once, when he had first gotten it. It had not interested her very much at the time, since it did nothing. But she had her own share of curiousity and the evidence she saw indicated that the doctor had made some progress.

He had not been very responsive to questions about it, either. He told her it was a TV, capable of eavesdropping on transmissions between satellites and earth stations. And she wondered, could he be watching the blue movies? Was this the reason for his secrecy? Had he become the proverbial dirty old man?

She hoped not. Certainly he had ample opportunity, if he were so inclined, to satisfy any prurient interest he had. More than half of his patients were female. Yet there was absolutely no evidence that he had any. Certainly he had displayed none while she was around.

Meanwhile, the clinic was going to pot. Finances were in disarray. The I.R.S. was starting to sound belligerent about its claims, which had multiplied despite her efforts to resolve them.

And she really, truly didn't know what they wanted, not that she hadn't tried to find out. She had. She'd called various numbers listed on the correspondence and made inquiries. Most of the time she was told the information she wanted wasn't available over the phone, or that it was in another office, or would require a special computer operation that wasn't authorized under the circumstances.

Frustrated, she had packed all the records into a case and made a trip to the regional office in El Paso. That, too, had failed. She found herself surrounded by a crowd of others as puzzled as herself, and not an I.R.S. employee in sight. All there had been was a counter with a couple of phones on it, and a few fragments of cardboard with numbers crudely penciled on them. She had given it a try, had been passed from one number to another, and spoken to countless flat, faceless voices. She could not reach the Mr. Abigeo whose name appeared on several of the notices; he was stationed in Kansas City, not El Paso.

Could she write to him? Certainly, only he would not answer. He would refer the correspondence back to the regional office.

She had next asked to speak to Mr. Blutsauger, whose name she had seen on the directory, and who was supposed to be the Regional Director. Mr. Blutsauger was not in, and in any case, he spoke to no one without an appointment. Appointments had first to be approved by the audit department—did this matter concern an audit?

Since it had not, she was told no appointment would be granted, and finally disgusted she had driven the 200 miles back almost in tears.

Now, her frustrations had climaxed and it appeared that soon the doctor would be retiring whether he wanted to or not. She knew it would be best for him if he did, but certainly this was not the way.

She looked down at the notice, crisp

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and fan folded, like it had just come out of a printer, never having been touched by human hands. "Dear [number]," it said:

> You have failed to satisfactorily respond to our previous notice. As a result, your file has been transferred to the local office.
>
> This is your final opportunity to voluntarily assist me in resolving this matter. We are prepared to levy on your assets. Your failure to cooperate may result in immediate enforcement action.
>
> Please contact me at the following telephone number or address by . . .

Consuela had picked up the telephone and started to dial the number when she noticed the date. The date was already past. It was almost two weeks ago. She put the phone down and picked up the envelope, turning it over to check the postmark. There wasn't any; it seemed that government blackmail didn't require postage.

The date on the notice was itself a month old, and there was nothing else on it to explain the delay. Consuela concluded that the delay must have originated with the post office, and again picked up the phone. This time she did dial the number and when it answered, asked for Fred Floh, whose name had been typed on the bottom of the notice.

Fred Floh was the "Chief—Office Branch." At last, Consuela thought, a real person.

She didn't get Fred; she got another nameless clerk who insisted Mr. Floh had nothing to do with the notice; that his name appeared on it simply because he was the person in charge.

Consuela told the story, pointing out the the notice had been received that very morning; that there had been no previous opportunity to discuss the claim, and that in any event, the notice failed to state the amount of the claim.

Well, that *was* tough, the voice responded. The government wasn't responsible for misdelivery, or delayed delivery. They couldn't be, otherwise too much deviation would be introduced into the collection system, and it was better that this continue to run smoothly even if it meant an occasional taxpayer might be harmed. There was no course left open to Doctor Degan except to pay the amount claimed or face execution.

How much was it? The voice didn't know. He would take the identification number and place it in the system. Dr. Degan would be billed. He should pay the amount billed, and could thereafter sue in the Tax Court of the United States if he thought he did not owe the money and wished to try to recover it.

Consuela gnashed her teeth and hung up. She had made a valiant attempt at communication and failed. There was simply no way that could be done. And it was apparent to her at that point that the entire system, while designed to look fair and open was really like a bag of feathers. No matter how hard you drove your fist in, it stopped you eventually, and meanwhile left no visible evidence you had ever been there.

Having nothing to tell the doctor she went on to her routine work, finished it, assisted him with the treatment of the four or five patients who popped in during the remainder of the afternoon, and left. He had acknowledged her departure with a grunt through the closed

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door, evidently deeply engrossed in his toys.

Bounced? Why? There were sufficient funds to cover the check, yet here it was, stapled to a notice from Dr. Degan's bank, which said, "Returned —NSF." Consuela picked up the phone and called the bank, requesting the party who answered to put her through to the bookkeeping department.

She got a Miss Elster, who said she could answer questions about the account.

"I want to know why this check was returned. It's number 1309, payable to the Internal Revenue Service, for $398.22. My records show there was over $5200.00 on deposit at the time it was written."

"One moment please." There was a pause. "OK, this is the reason: there was a lien filed—let me see—two weeks ago. After that they levied, and we received an order for execution on . . . "

"What? What does all that mean?"

"Uh—well, it means that the IRS seized all the funds in Dr. Degan's checking account. You can expect all the other checks he wrote to bounce too."

Consuela felt a wave of heat rising. It began at her toes, coursed rapidly upward, paused briefly in her chest to get it heaving, then raced for her vocal cords. There it stopped, simmered and stalled, producing only a sputter as she strove mightily to avoid saying what she was thinking.

The voice on the other end had evidently delivered such tidings before. The woman knew what was happening. "There isn't a thing we can do about it. The law forbids the bank to warn the customer, and they always tie everything up, regardless of the size of the claim or the amount on deposit."

"Well, if they've got the money they wanted why don't they turn the rest of it loose?"

"They—they seem to enjoy embarrassing people. That's the way it seems, anyway."

"What can we do to get it cleared up?"

"Well, I'm required to get a release before I can do anything. I wouldn't know what to tell you about how to get one. Mostly, we just wait for them to mail us one."

"How long does that take?"

Again, Miss Elster paused. "Sometimes as much as a month," she finally answered.

"And what is poor Dr. Degan supposed to do in the meantime?"

"Doesn't he have any more money?"

"Well, I don't know."

"If he does, I hope for his sake they don't know about it."

"Why?"

"Because they'll have that tied up too. Look, maybe you should talk to one of the lending officers."

"Why? What have they got to do with this?"

"Nothing—except they might be willing to make the doctor a short time signature loan—provided he can satisfy them that the I.R.S. doesn't have any more unsatisfied claims, that is."

"Let me think about that. Thanks for your help." Consuela hung up.

She was still simmering, but now her ears were burning red and she was mut-

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tering to herself in gutter Spanish. She slammed a tiny fist down on the desk top. Paper clung to flesh wet with perspiration, rose with the fist, then fluttered to the floor. It was another buff envelope, on the front the hideous words "Internal Revenue Service."

Consuela snatched it up and ripped it open. Unfolding the flimsy computer completed form she gasped in disbelief at what it said:

Dear [number]

Your check in payment of your indebtedness to the United States Treasury has been returned by your bank marked "Not Sufficient Funds," consequently you are subject to the additional penalty specified below. If all delinquent taxes and accrued penalties are not paid in full on or before ten (10) days from the date of this notice immediate enforcement action, including levy and execution, will be taken.

Consuela stared at the notice in horrified disbelief. Not even when she had worked the locked ward at the State Hospital had she seen behavior so brainlessly insane. She held the notice up closer to read the name it bore, typed at the bottom; it turned out to be her old nemesis, Fred Floh.

A resolute hand shot out, stabbing at the telephone, knocking the receiver off the cradle. Consuela didn't bother to pick it up. Instead she punched savagely at the buttons, first the area code, and then Fred Floh's number.

But as she raised the receiver to her ear to listen for an answering voice, she discovered another chilling development; the telephone was dead.

"Oh, no," she cried, slamming the receiver down again. "Not another rubber check."

It was. Checking the stubs, she found that not only did the telephone company get one, but the electric company, the American Medical Association, the State Medical Licensing Board, the state tax people, at least half their pharmaceutical supply houses, the office supply company and the newspaper. Consuela broke down and cried.

Old ears heard the sobbing, and Degan's head popped out the lab door for the first time that afternoon. "What's the matter with you?"

Consuela looked up, her face a blur of red, and sobbed—"It's not me, you old fool; it's you."

"Me? What are you talking about? I'm all right."

"N-no you're not all right, Dr. Degan. The government is out to break you, and it looks to me like they did it."

Degan's bedside manner immediately appeared, and went into the "comfort hysterical female" mode. And it worked. Consuela calmed down enought to start explaining what had happened.

She did it with venom in her voice. By the time she was finished and he knew the physical facts of the situation, a little of that venom had appeared in his own speech. "We'll take care of them," he said.

"How? They don't care! They don't listen! You can't even talk to them! We're dealing with a monster, not human beings. It's like a mob entity. It has no head, no heart; nothing but hands. How can you fight that?"

"C'mon into the back room, Connie. I'll show you."

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* * *

"Who is that old geezer, Harry?"

Harry Nealis looked up to see what his partner at the next window was talking about. He had to. Joe Garbin would continue to bug him until he did, and he was busy trying to inventory his stamps while there was a momentary lull at his window. He saw a familiar face, in the corner, next to the bulletin board. "Who? Him? How would I know. I see him come in here about every day. He stares at the wanted posters for a while and leaves. Why did you ask me?"

"You know everything," Joe replied sarcastically. "You suppose he's a bounty hunter?"

"Him? I could kill him with one punch, and I'm a wimp. It's probably the way he gets his jollies." Harry went back to his counting.

The "old geezer" lingered a while, flipping through the posters, memorizing faces. Then a smile erupted on his face, and he walked briskly out of the post office to a waiting car. He got in the passenger's side and the woman who was driving sped off.

She drove to an unpretentious but tidy rooming house on West Montana Avenue and pulled up to the door. The man got out, waved and muttered, "Thanks for the ride." Then he disappeared through the house's front door.

"El Paso County Sheriff's Office, Sergeant Garcia."

"Captain Autillo, please."

"Who's calling?"

"Argus."

"The Captain's in conference, Mr. Argus. Can I have him return your call?"

"No. Put me through."

"I can't. He said 'hold his calls.' "

"I'll give him Tijerino."

"What?"

"Rudolpho Tijerino—the terrorist."

"Hold, please!" Click—"Captain, there's a guy on one who says he's got Tijerino."

Click—"This is Autillo. Who's this?"

"Argus."

"You know something about Tijerino?"

"Yes, I know where he is, right now."

"Where?"

"Not so fast. I want the reward."

"If you've got Tijerino you can bank the reward." Autillo's face flushed and his hands started sweating. He signaled through the office window for Garcia to flip on the recorder.

"OK. I want it paid anonymously, in cash."

"OK. Where is he?"

"I'll tell you when we get payment worked out. This is what I want you to do. . . ."

"Did you get all that, Garcia?"

"Yes, sir."

"Fine, then keep your mouth shut. If it works out there's no need for anybody else to know how we did it; understand?"

"Yes sir."

"Get me a car, and a vest. Get me a chopper, too, and a dozen of our best men. Make it plain clothes."

"Yes, sir. Y-you're going in too?"

"You bet. We'll seal him off and nail him while he sleeps."

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"How do you know he'll be asleep?"

"Because the man said so. Weren't you listening? He was right on top of the guy; had to be. His description was right on the nose. I've been to that motel, that room, and I . . . " His voice trailed off. In his enthusiasm he was telling tales better left untold.

Autillo was ecstatic. He sat in his office and gleefully awaited the sight of the morning paper. *HE* had Rudolpho Tijerino—*HE!* Not the F.B.I.; not the Department of Public Safety, not Treasury people, but *HE!* God! He couldn't wait to see it all in print and on TV, with him leading this guy out by the nose in his B.V.D.'s. He'd be the most famous cop in the country after this.

Garcia interrupted him on the comline—"Sounds like the same guy again, Captain. Shall I put him through?"

"Yes." Autillo snatched up the phone. "Hello!"

"You did a fine job, Captain. I watched it all. Very smoothly executed."

"T-thank—you what? You watched? From where?" Autillo knew this was impossible. He had the area sealed off so well even the mosquitos were challenged when they tried to pass through.

"The same way I knew how to find him. The same way I'm watching you right now."

"What?"

"Don't pick your nose, Captain. It looks disgusting."

Autillo blanched, looked out through the glass and met Garcia's smile beaming back. He motioned frantically for Garcia to chop the recorder.

"In any event, I trust you now appreciate what I can do, and that you'd be receptive to more information—on the same basis, of course."

"Y-yes; certainly. Uh—when?"

"That depends on what opportunities appear, Captain. I don't move people around; I just find them."

"Your money's on the way, Mr. Argus."

"I know." Click.

"Well, Connie, how's young Dr. Carr doing? Is he making it?"

"He's doing fine, Dr. Degan. A little bit mystified as to how all this came to happen, though."

"You told him what I said didn't you? About the eccentric old coot with the gold mine? The one who set up the foundation for my old clinic?"

"Yes. Well—why don't you just peek in and see what's going on?"

"Aw! I couldn't do that. I'd be spying on you."

"Yes. You might even catch me goofing off, doing my nails or something. Dr. Degan, you know you're spending a lot more than you have to, with me *and* two other nurses; and *all* that equipment. We've got more of that than some hospitals."

"The well is far from dry, Consuela. It may be bottomless. Besides, I've got some other plans for you. You're about to be propositioned. Come on; let me show you the rest of my 'house.' " He rose from his seat in the driver's compartment and led her back through the luxurious vehicle. "Pretty swank, huh? Forty-five feet, on a Bluebird chassis; diesel powered; everything I need on board to make me comfortable, and I don't even have to go outside. You

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know what they say—'living well is the best revenge.' "

"All this, collecting rewards?"

"No. No, Connie, that was just to start. I branched out; went for the real loot. It's all over the place. People will pay for all kinds of information. You just have to find the right stuff for the right need. There are quite a few fringe benefits, too. Uh—would you like a drink?"

"Sure. What have you got?"

"What do you want?"

Consuela wanted a stiff drink of whiskey, but she settled for white wine. When she was seated and sipping, she asked, "what kind of fringe benefits?"

"A little personal vengeance. Remember Fred Floh?"

"Do I ever."

"Fred's under indictment. He'll probably be convicted too."

"What for?"

"Conspiracy to violate the Internal Revenue Code."

"You caught him?"

The old man squirmed a little, and sipped from his own glass, which *did* contain a stiff drink of whiskey. "Well, no; not exactly. He was way down on my list of priorities at the time. I'd have gotten to him eventually, of course, but in my own good time. No, it happened by accident, but I did precipitate the accident." He paused.

"You see, while I was still at the rooming house I got to thinking about what you told me about the banks; how those vultures swoop down and grab everything without any warning. Then, *I* dipped. I looked at Fred's files, and I made a list of all the people he was about to hit. Then I got on the phone and called them all, and I made the same deal I made with Autillo: cash for helpful information, paid after the fact, anonymously. Fred started pulling in empty nets, except for the ones who double-crossed me, of course."

"Double-crossed you?"

"Yes. Some of them tried that. I peeked in on them, located their concealed assets and dumped the information back on Old Fred. Fred had kittens."

"Uh—why?"

"Because he knew that somehow, somebody had sources of information superior to his, and he suspected it was the same person who was warning his victims. He tried all kinds of tricks to catch me.

"But Fred's biggest problem was how to conceal the fact that he was doing the same thing I was—on a smaller scale, of course. My activities triggered an internal investigation that led to his undoing. And let me tell you Connie; these people are just as cutthroat with their own as anybody else. There seems to be something about the organization that attracts predatory types.

"So Fred's gone."

"Good. I really do appreciate knowing that, Dr. Degan."

"Oh, there's more. I'm in the publishing business now too. And, I've got me a best seller. Got some real sharp helpers printing it up down in Mexico."

"I never suspected you for a novelist, Doctor."

"Nothing like that, Connie. It's a telephone directory: all the office numbers, all the private numbers, all the home phone numbers and addresses of everybody who is anybody in the I.R.S.,

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along with job titles. It's selling like hot cakes.

"Next thing I plan to do is publish all the access codes to their computer network. You watch the fur fly then.

"You know Connie; I'll be eighty-two years old next month, and in the first seventy-nine I never did a dishonest thing. I just plodded along doing what I was told, keeping my head down and my nose clean. I was one of those people old enough to remember how it was when this whole system started and I guess I wanted to believe that everything was on the level. I knew it took money to run the government and didn't mind paying my share.

"But what started out as a useful, necessary branch of the government has grown into something else; as you once said, a mob entity with it's own objectives, the most important of which appears to be the perpetuation of its own existence and the increase of its own power.

"Power begot power. If you can investigate *anybody* you want to for *anything* you want to, for as *long* as you want to and as *often* as you want to—congress, the cabinet, the president and the courts—you're going to acquire and wield power. You can put yourself beyond accountability; insulate yourself from the constitution. Do you know what some of their own publications say? They say, *'if we do make an error you are still responsible for the payment of the correct tax.'* "

"What?"

"Yep. Crush the taxpayer with paperwork, confuse him with gibberish, hound him with deadlines, terrorize him with threats, penalize him for his own mistakes and then demand infallibility—that's the way its done—uh—was done."

"Huh?"

"I fixed it; at least I started to fix it. But I can't finish, Connie. I'm old; I'm sick. I want you to take over."

"Me? What . . . ?"

"I haven't taken care of myself, Connie. I've been too busy. From the observable symptoms I suspect it's polyarteritis, so it wouldn't have mattered much anyway."

Consuela gazed back at him, tears forming in the corners of her eyes.

"Don't do that," he said, as calmly as he could. "It's as good a way to go as any, and certainly, I've lasted longer than most." He struggled to his feet. "Follow me to the back. I want to show you something."

Like an automaton, she did.

Degan opened a door to the rear compartment, then thumbed a switch on the wall. There was a cranking noise, followed by a muffled roar. "Generator," he explained. "We need AC for the video machines."

Consuela found a seat, and Degan activated one piece of equipment after another, until the room hummed with sound. "This is where I watch, Connie. Someone must always watch. They must always know someone watches, but never who."

Consuela gulped, and nodded, no longer tearful, infected by the old man's sincerity and enthusiasm.

"Conscience! Conscience is the key to responsibility; to restraint. Conscience is not a normal function of government. The founding fathers fought hard to instill it, but they failed. That

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is what enabled bureaucracies to entrench and insulate themselves from public view, and it is why they dare disobey the public will. What the people don't know cannot hurt the bureaucracy.

"I have not, nor should you, confine your vigilance to the I.R.S. They are not the only ones who need watching, merely the most threatening."

"I even help *them* once in a while. Look at this." He flipped a switch and a screen lit up. Around the edges of the picture could be detected the shining border of the vision plate. Figures appeared assembled in a dimly lit room.

"That is the 'banking' department of the mafiosi family presently in control of vice operations in Philadelphia. Note the carefully counted and bundled piles of cash. Note the accumulation of papers and adding machine tapes which have been used to tally it. These will be destroyed, minutes from now, when the tally is finished—except for what I record on tape—as you see."

Consuela did see. The image closed, rotated, zoomed in. And on the screen each paper became clearly readable. Detail was fantastic.

Degan cleared his throat. "These people are all under investigation for evasion. Indictments have been typed and are lying on the District Attorney's desk at this very moment, ready for presentation to the grand jury. He expects a little trouble explaining where he got the tape, which I mailed to him anonymously, from the road, but even if the prosecutions ultimately fail one more insidious organization will know it's being watched, somehow, by someone from whom nothing can be hidden."

More illustrations followed in the hours that passed. Consuela was tutored carefully in the techniques the old man had perfected. He showed her how to use the device to produce money to fund the operation, how to conceal the origin of documents and tapes surreptitiously sent to persons who he meant to act on them, and how to deal with associates and underlings who did not know for whom they labored.

"You've been a regular one-man underworld, Dr. Degan," Consuela said in astonishment. A note of hesitation appeared in her voice, which took on a cracking, quivering quality as these words trailed off. "How could I ever replace you?"

"It has to be you, Connie. Whom else can I trust this with?"

"But—I haven't got any experience with this sort of thing."

"Neither did I. I'm just an ordinary man, who was trying to get from one end of life to the other without complication. Circumstances forced me to adapt, and I think I did. And if I did, you can. I think it's your destiny, just as it was mine."

"Oh, Doctor . . . I don't know."

"Don't you believe in destiny, Connie?"

"Well, I . . . I guess so."

"Good. Never question destiny, Connie. I almost did, when this device fell into my hands. I didn't trust myself with it because I didn't know where it came from. But somehow, I managed to do the right thing; resist the impulse to dump the responsibility for its use on somebody else, and trust they'd use it the way it should be used. That would have been a tragic mistake.

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"It was only when I realized that it had the power to do good or evil that I quit worrying about its origin and put it to practical use."

"Where *do* you think it came from?"

"I know where it came from. You see, right after the government closed me up and I was out humping as a bounty hunter, I used it to locate Juan. Juan told me how he'd found it. He got it from an extraterrestial being, Connie; one that crashed and died out there in the desert."

Consuela nodded. "I had a feeling it was something like that. But, what was it the creature was doing here?"

"I don't know. Juan didn't know either. I suppose it could have been a harmless castaway, shipwrecked on the way to somewhere else. On the other hand, maybe it was sent here to spy on us. We may never know. As long as I've been able I've kept watch, with this, just as you'll have to. Because, you see, the threat to mankind isn't just from within, as we always thought. It's from outside too."

Consuela blinked.

"I need an answer, Connie; will you do it?"

She looked back at him and uttered a firm and unequivocal "yes."

"Good. You are now officially the apprentice keeper of the 'All-Seeing Eye.' "

"Is that what you call it?"

"Why not? It is. What would you call it?"

Consuela's mind dipped back into that part of her culture which reeked of the myths of ages past; of wisdom, of philosophy made simple for simple people who thus had understood and followed it through ages eternal, and whose origins were lost in the dim mists of time. Myths had a purpose, needed a purpose to endure so long. That purpose was to teach, to enable man to avoid the mistakes of his past. Therein lay her misgivings.

She turned to Degan and said, as solemnly as she could; "A dragon's tooth." ■

IT'S ANLAB TIME AGAIN!

This issue completes 1984 for *Analog;* now it's time for you to let us know how we're doing. The authors are interested, I'm interested, and you should be interested—because your feedback about your likes and dislikes will have a second-order feedback effect on what we offer in the future. So please vote. Here's how:

Look over all your copies of *Analog* dated 1984, or refer to the Index of 1984 which will appear in our next issue. Pick your *three* favorites in each of the following categories: novella/novelette (a single category), short story, science fact article, and cover. Then drop us a line listing your choices, in order of preference. We'll tabulate the votes and let you know how they came out.

We normally ask for your votes on serials as well, but only two appeared during 1984.

Please send your votes to: Anlab, *Analog,* Davis Publications, Inc., 380 Lexington Ave., New York, NY 10017, before February 1, 1985.

—The Editor

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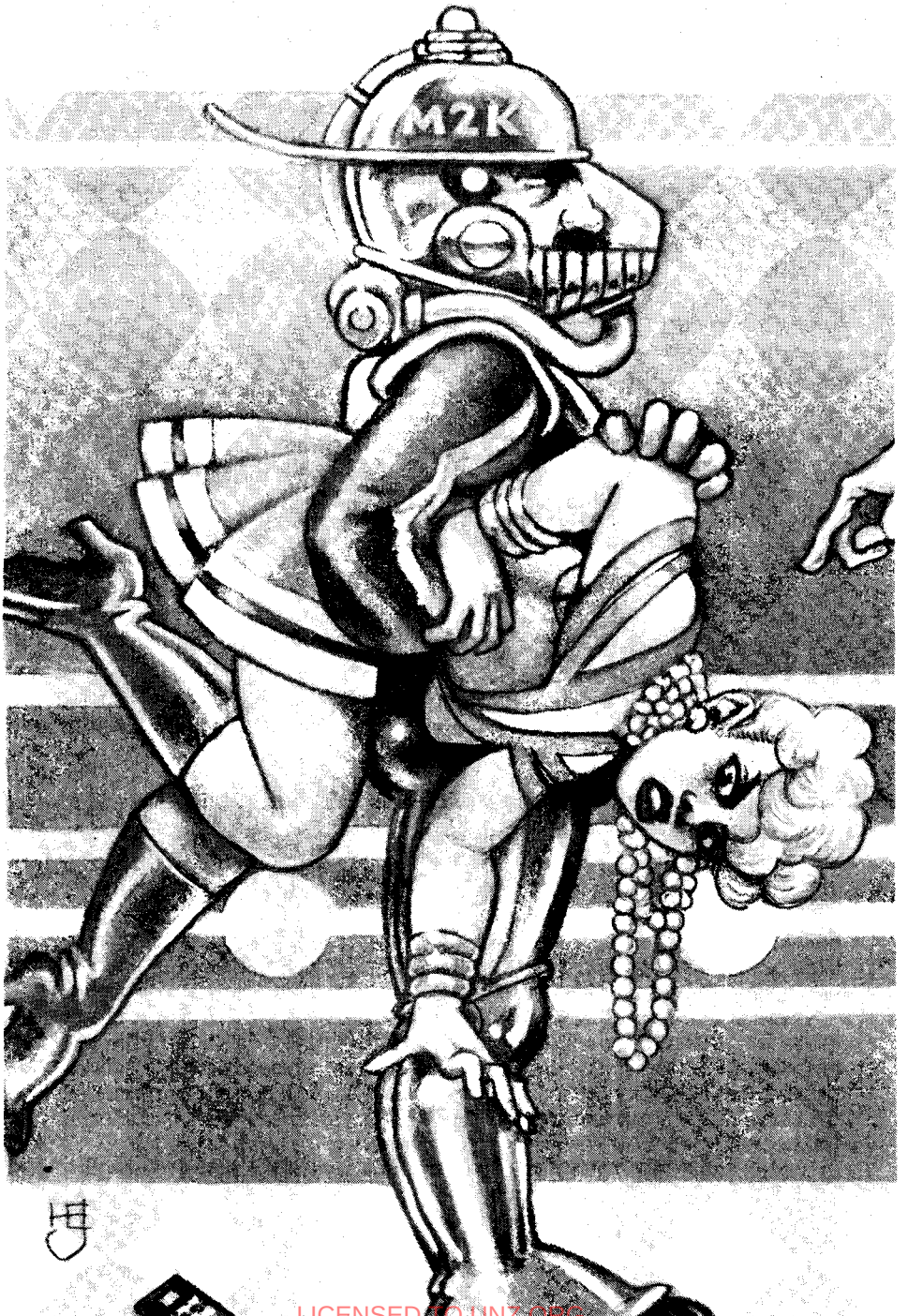

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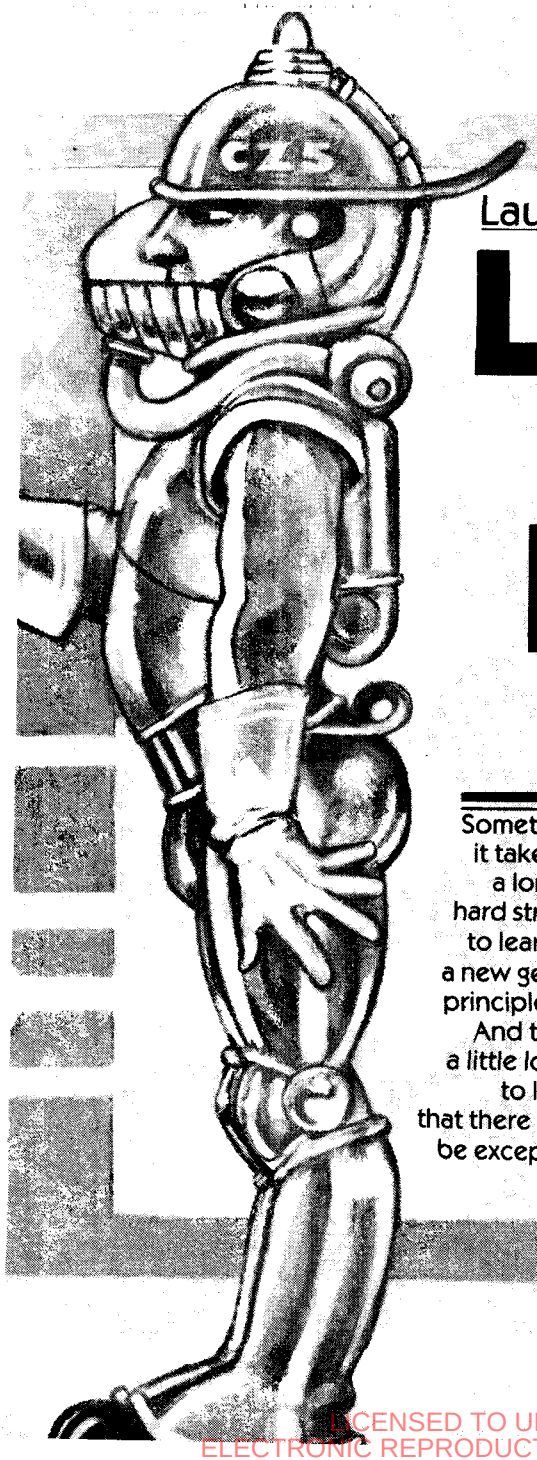

Laurence M. Janifer

LOVE IN BLOOM

Sometimes
it takes
a long,
hard struggle
to learn
a new general
principle.
And then
a little longer
to learn
that there may still
be exceptions.

Hank Jankus

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"Put down that wench!"

The man addressed turned around slowly to face me. His expression was hidden behind the baffles of his complex helmet—part of a damned uncomfortable suit of armor that wrapped him from head to toe.

"What the Hell's eatin' on you, Knave?" He made no move to let the woman go. Hearing the weird patois of the planet (Roberta, of course), I sighed and resigned myself—for about the ten-thousandth time.

I was wearing the same silly-looking armor. I faced him like a knight counting down the seconds before a championship joust. X, IX, VIII, VII, VI . . .

By about half-past V I was reaching for some strong words:

"You heard me, Harper. Put down that wench *at once*, and get the Hell away from the open beaker line. Erickson!"

Another figure in armor came past the shield wraparound that separated the beaker line from the—slightly less dangerous—general process checking operation, such as it was. He spoke in the same odd dialect. If God had meant us to talk funny, He wouldn't have given us the Comity Standard Dictionary.

Oh, well. "Whatcha want, Knave?"

My own promunciation was precise and accurate; it seemed the least I could do. "Harper's relieved from watch. You take over: chemical engineer for this stage, this watch. And send for your standby replacement to take over the checking line."

"Don' mind if I do," he said, and saluted. I caught myself just before returning that. It's an insidious habit.

Harper, meanwhile, was looking from me to Erickson, and after another second or so he walked the wench over and set her down on her feet, just where she'd been—about four yards away. (He'd been caught in one of those Romantic Vision poses I'd never thought existed, outside ballroom dancing and the occasional fax cover-print—and loosing the wench was a graceful, thoroughly Romantic event: they went softly across the bare, chem-resistant floor, and he took his arms gently from her waist and shoulders, and set her upright with perfectly fantastic, and quite unbelievable, grace and courtesy. Gave me a brief pang, and for one awful second I wondered whether I'd been caught. But I pushed down the pang, and it stayed down.)

"Just as you say, Knave," Harper told me. "But—send for your relief, too, if you got one. Hard to believe there'd be two of you—but I am gonta demand an immediate hearing!"

He stamped on out, his boots making one Hell of a sound on the diamond-hard, guaranteed-resistant floor. Erickson wasn't saying a word; he was looking at the ceiling, mostly, and his occasional quick glances toward the wench or toward me were clearly labeled: "Who, me? I'm scarcely even here."

As for the wench—a Control (Natural) Supervisor named Marion Clifford—she sort of cleared her throat, squared her shoulders and got down to what work she could still do, with her partner gone: checking for the accuracy of the particular strain (a cloned molecule named Alpha Felix, which struck me—and still does—as a singularly horrible pun), and paying no attention

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whatever to anyone else. Unless you happened to notice the fierce rigidity of her neck and shoulders.

I made a mental note to have her run reworked, by someone under just a bit less emotional strain. If I could find anybody like that.

In the silence, the twenty minutes it took for my relief to arrive felt more like three or four days (the whole wild job having been one thoroughly eternal assignment), and I got to feeling just as unhappy as everyone else.

After all, I knew the problem, and the dangers; and I kept wondering whether my armor was any better than Harper's had been. Or if, just maybe, the armor was fine in both cases, and Harper was going to turn up with some sort of perfectly reasonable, irrefutable explanation for his action.

This seemed awfully unlikely.

But if my suit had sprung a leak . . . well, the sort of pheromone bypass these people were dealing with was a whole new notion, even in theory. If it worked, and they managed to maintain secrecy and reduce the crackup rate, marvels and wonders of all sorts were about to descend on an unsuspecting planet. A miraculously expanded universe . . . which sounded much too poetic, all of a sudden, and I began to be sure that my personal coventry had been breached: I knew I had to be imbibing a molecule or two even through armor, baffles, helmet, old Uncle Tom Cobleigh and all.

Not enough to add up to what Dr. Karst called, with horrifying casualness, the Number of the Beast, when you tip over and find yourself in Harper's difficulty—with time enough to love, but no time at all to do anything else except maybe hum a fast requiem for all the sad double-starred citizens of Roberta.

Poetic as Hell: indeed. I shut my eyes. I did *not* repeat *not* take a deep breath. I reached for a few small relaxation techniques I'd learned years ago from a man named Baldwin. Baldwin had been totally relaxed—especially about food and drink: he was universally called Kettle Belly; his christening-handle was the sort of thing people use for Trivia hunts.

Well (I told myself), everyone to his own appetites. Kettle Belly's had been food—with a sideline or so in languages, subnuclear physics and, oddly enough, espionage (which was how we'd met). Mine, it was becoming clear, was women.

This Marion Clifford, for instance. A remarkably attractive wench, now I happened to notice. And there was time enough . . .

I bit down on my lower lip, hard. I fumbled round for some common sense—an item in frighteningly short supply, anywhere and at any time.

My armor, understand, was supposed to keep me perfectly safe.

And the only sensible attitude to take toward that assurance is to trust it just as if it were a guarantee from Magic, Inc., otherwise known as wishful thinking—soak up all the hard data, and then take your own precautions. As many as possible.

Unfortunately, there were none to take, except what Roberta's bubble handed me: the wonderful armor, a shot of God-alone-knows-what-anhydrase (or just possibly You-couldn't-possi-

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bly-be-highly-enough-educated-to-understand-its-formula-chlorate) every seventy-two hours, and the twice-daily psychiatric sessions.

The sessions were set for coming-on-watch and going-off-watch for all shifts. The bubble had slightly more psychiatrists than chemists, chemical engineers and administrators combined, which is the Hell of a lot, especially when you figure in the administrators. This weird disproportion was sold to Roberta itself (and any other interested party) as the latest advance in Employee Relations. The bubble, for that matter, was supposed to be manufacturing a new sort of radioactive-dust weapon.

That explained its off-planet location, in Roberta's L5. Or Dr. Karst and the rest hoped to Hell it did. Given an on-planet war in which all parties seemed to be setting new records for hatred, madness and general irritability, the statement that Karst and her plant were really working on a chemical surprise aimed at *both* sides (though neither lethal nor, to its victims, truly unpleasant) would not have been greeted with glad little cries of perfect joy and understanding.

As much as anybody knew, the secret was safe—so far. I was doing my best as a sort of combination watchman, guard and general spoilsport—not exactly your usual Gerald Knave: Survivor operation.

But the notion had fascinated me from word one, or at the very most word five. I am, within reason, anti-violence. I'm an information collector: I have to be. And (despite what you may have caught on the 3V sagas), a Survivor is not a kill-anything-that-moves sort of operator. *Au Contraire*, as the man says—there being comparatively little information to be got out of a corpse.

And Karst's lovely, comparatively non-violent surprise (I'd have to stretch some to call it a weapon) fit right in with my beliefs—not to mention chiming nicely with one of my favorite hobbies.

Imagine it, after all: a pheromone bypass!

Pheromones (if you know all this, you can skip down about thirty seconds, or half a page, or one signal-beep, depending on how you're getting this report)—pheromones are teeny chemical cues. They exist for quite a lot of original-Solar life, and there are close analogues for many non-Solar life-forms. (The Kelans, so they tell us, have deliberately chosen to keep the pheromone system of their home worlds. "A reasonably elegant solution to a complex problem," is what they call it.)

For most original Solar life, the stuff is irresistible. Let's say you're a butterfly (and if you are, do let me know; I'd enjoy having some butterflies among the audience for these unofficial reports). Given only two or three molecules of butterfly-labeled pheromone, you are (so to speak) a gone goose. You are suddenly capable of only one motive: Find a butterfly of the opposite sex. A stranger, as the old song says, across a crowded room.

You become a Male Chauvinist Pig Butterfly, as the FemLib people say, and you pant and flutter madly in the search for a Sex Object, and all this will go right on until the stuff wears off.

Human beings not being butterflies,

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their response is much weaker. Generally, a man can summon up his willpower and resist the Call of the Chemicals —and, in many cases, he won't have to summon up very much: other factors enter into all this, and he'll have his switches tripped only by those pheromone-emitters who happen, as they say, to be his type.

(And, just as it is in most other species, it's going to be a man. Only females go round dropping this particular handkerchief. FemLib people hate this fact.)

A Dr. Estelle Karst, while hunting for six or seven other things, had come up with a pheromone bypass—and had had the sense to realize that what she had was not a contribution to anybody's war effort, but the Glory Road to ending the war.

Somehow, Karst had promoted herself a research bubble. God alone knows what story she'd come up with, but it had worked on the Space Navy research chiefs for Virginius—the half of Roberta to which she'd been attached. They thought she was working on this dust, aimed at Ansonia (the other half).

Then, embubbled, she discovered she had an Operations Supervisor—a tough, feisty Admiral named Hugo Pinero—who was the bright type. He had Karst's swindle taped within hours. And he was really bright: he kept it dead quiet.

Pinero was a suspenders-and-belt type. The security precautions, plus armor, a corps of watchstanders, and a few other small goodies, were the belt. After wondering about suspenders for a bit, he'd got in touch with me—by coded beam, space-four, which is shockingly expensive, and which therefore had me interested right away.

I'd actually come to the Karst bubble with my own cover story (it involved a sixth column, a star beast, a goldfish bowl, and even sillier items), to find out more. And, after a little private conversation with Pinero, I'd asked:

"But just what does a pheromone bypass *do?*"

"Any male human subjected to this new chemical—" (I'm going to try not to transcribe any more of what passes for speech on Roberta, and in its charming bubble. I don't think you really want any more; if you do happen to be a butterfly, I know damned well you don't want any more, butterflies being, as far as I can figure them out, full to their teeny brims with aesthetic sensibilities. Translation into good old Standard from here on: my gift to the citizens of the galaxy.)

"Any male human subjected to this new chemical—" Pinero (more or less) said—"which is a gas at normal temperatures—"

"It certainly *sounds* like a gas," I said, but he only coughed and went on.

"—will have nonselective total reactions to pheromone stimulation."

"Great," I said. Which means?"

He sighed. "He will be unable to control his reaction. He will react to any female human being at or past the age of puberty."

I thought about that for a minute. "Hoo boy," I said, with some feeling.

"He will become entirely uninterested in anyone—or anything—else," Pinero said. "He will have no aim in life except connection with the pheromone-emitting object—and, post-con-

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nection, the next female he senses will again attract him."

"Poor butterfly," I said. As in the old song.

"Exactly."

"In other words," I said: "make love, not war."

"Quite," he said. "For as long as the bypass functions."

I waited a second, not entirely sure I wanted to know. But: "How long is that?"

"The minimum time is one Standard week. Just over seven Robertan days. We can extend that to—at present—five standard months, if desirable."

I didn't think about that, not much. It didn't bear thinking about much. "With what results to the—ah— participants?"

He shrugged. "The effect is upon desire, not capacity: normal physical constraints apply. Though an increase of desire of course tends to increase capacity . . . However, some exhaustion of a temporary nature is a probable result—"

"I should think so," I said feelingly.

"And perhaps a few other transient phenomena of the same sort," he said. "There are no serious or permanent results—discounting, for instance, pregnancy, if one's shots have been unaccountably neglected—"

"Sure," I said. "And this chemist—"

"Karst."

I thought of three separate puns on "Karst-effective," and decided not to make any of them. This Pinero was not the jolly type.

Neither was I, after the briefing I'd had. Cupid—or at least Pan—had never really been made universal before. . . .

We discussed fee and bonuses and agreed on what Pinero characterized as grand theft. And all the time, I kept wishing that Estelle Karst's first name had been Lola.

Whatever Lola wants . . . Lola gets . . .

I knew a gal named Lola Goetz once. She'd never heard of the song, damn it.

I was still replaying such memories when my replacement arrived. A nice young kid, with a weird handle. I admit that people named Smith need unusual first names, but Valentine is overdoing it (especially, it occurred to me, in that particular bubble). The kid collected a good deal of ribbing, and generally begged people to call him Mike, for some reason.

He snapped into a salute, and I gave him one back just to be friendly.

"What's the fuss?" he said, like a stranger at an accident.

"Well—" I went round behind the shielding with him as I explained, so he could crack his helmet enough to get about eighteen ounces of water into him. Thirstiest human being I'd ever met, off a desert world.

He kept drinking until I was through. "I'll take over, then," he said. "I suppose I'll be all right."

"As all right as any male, around here," I told him. "But if the stuff does get you—try to find somebody new. That Clifford gal may have had enough for one shift."

And the hearing turned out to be as expected. Harper did try to make something out of his having been sort of a Thing with Clifford some few weeks

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back; but that got treated with the boredom it deserved. We were all done before the shift ended.

Not that I got a chance to scamper on back to the playroom. The Plant Superintendent—a title that means very little on some worlds, but in our bubble translated to God Almighty's Slightly Younger Sibling—lifted a finger at me as the hearing broke up, and I nodded and stayed around while the rest filed out—Harper, a four-woman jury, and a Superintending Psychologist named Silard. When we were alone, the Super (her name was King—a title that will pry loose all sorts of respect on most of the worlds where Plant Superintendent won't buy a cup of coffee) leaned across her desk and said:

"Well there, Knave: whadda we do now?"

Sorry about that. Translation slipped for a second. "We go back to work," I said in my best Standard. "What the Hell else can we do?"

"I have no idea," she (more or less) said. "And you ought to have. You've been here two weeks. You've called for six hearings, and been party to four others. You've seen everything there is to see. What's our answer?"

I just looked at her. "What's the question?"

She sighed deeply. Displaying great patience, I suppose. "We can't go on like this," she said. "The men are falling apart. We've got to stay shut in—this has to remain a secret. And there's no such thing as a perfect seal, not for something that can be effective in individual-molecule strength. As long as we do stay shut in—"

"The attacks will go on," I said. "But secrecy isn't the problem. If this whole operation were displayed on constant 3V, the attacks would still go on."

"I suppose so," she said. "But we've got to find a way to keep the men working, to keep everyone from cracking—to keep this going, for the two to three months we need."

There is always another fact hidden in the dust somewhere, and I do like to dig those oddities out and polish them, but the odds are enormous that none of them will do you any good. And I *had* been there long enough to see (nearly) everything there was to see. Therefore, I did not suggest:

(a) Psychological testing of male staff. It had been tried, it was still being tried; but the damned pheromones didn't worry about psychology: if you were male, you were doomed.

(b) hiring only chemical engineers with weak sex drives, effectively nonexistent sex drives, or sex drives aimed at the male, instead of the female, half of the human race. That had been tried, too; for results, see (a).

(c) Hiring only female chemical engineers . . .

And that, of course, was the logical, easy solution. King had gone just as far as possible with it. According to surveys, something like 79% of chemical engineers were male—on Ansonia—or near enough. That sort of statistic changes from planet to planet and from generation to generation; for the moment, we were stuck with the bad news.

King had hired very nearly every female chemical engineer on the planet—in our bubble, there were nearly 70% female staff in risk jobs—and there hadn't

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been enough. If he'd been able to hire from both sides in the Robertan war . . .

But then he wouldn't have needed the Karst discovery at all.

I suggested hiring more offplanet engineers—female.

"Sure," King said. "And have Ansonia itself wonder why I'm bringing in engineers from Rasmussen, say—or Earth, for that matter."

"There might be some way to do it quietly," I said.

"So there might," she said. "I know you were hired by tight beam. If there were a way of sending a space-four message with *no* public notice—"

Hell: my ship could manage that. I so stated.

For about three seconds I basked in the respect of God Almighty's Slightly Younger Sib. I may be the only civilian with full space-four capability (extracted from a grateful—when suitably reminded—Comity). But the respect died quickly.

"And," she went on, "if there were a way to land them here with the same lack of notice."

That would have required several sorts of invisibility ray. The things are so damned popular on 3V, I wish they existed out here where people could grab onto them.

"All right," I said. "But there has to be a way—"

"Does there?" she said bleakly.

"Well—" I blinked. "Look: how about arranging shifts so that only women are on at one time, only men at another—"

"I've been trying to do that from the start," she said. "But the needed skills don't separate out as nicely as they might. But you're assigned, right now, to a shift and location as thoroughly male as any."

"I don't suppose you could persuade the female engineers that an attack now and then was a sort of—occupational hazard?"

She just stared at me. "I might," she said. "But—well, Harper won't be back on duty for two of his shifts. He'll go down to Recreation to get drunk—and perhaps find a slightly more willing partner. And at that, he'll recover more quickly than most. You see, Knave, the occupational hazard comes in two parts: the women get attacked, and the men lose all interest in anything but the women."

Harper had at least turned pugnacious when I'd stopped him; but the correction wasn't worth making. That temporary extra area of interest was no help at all.

No more help, in fact, than I was.

King said, again: "Well?"

"Not well," I said. "Not well at all."

Three days passed. Three long, trouble-loaded days.

I have no excuse. It's perfectly true, though, that you can get too close to a situation to get a decent look at it—but, on the other hand, a decent look wasn't quite what this particular situation seemed to need. An indecent look, now . . .

Those three days involved fifteen attacks. The fourteenth involved Harper again: it seemed everyone had overestimated his capacity for resisting, or just wearing out, the bypass effect. We were all thankful (Clifford not least) that the target of his latest launch happened to be a gal named Hardesty—and, frankly,

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if he'd asked for a hearing, I'd have been tempted to put him right back on the line, as being a little precipitate, maybe, but fundamentally perfectly normal. Hardesty was a gal of remarkable specs, a first-generation Robertan colonist from the center of the Comity, whom I'd taken to thinking of as the Menace from Earth. The bypass effect could have aimed Harper at any female in the bubble; but aiming for Hardesty scarcely required any novel chemistries.

In less demanding circumstances, I might have made a quiet pass or two myself, despite the fact that she was married (her husband was an engineer as good as she was, on a different shift). I do have something of a rule against tampering with the truly married; but I'm not, as they say, *fanatic* about it.

Harper, though, was only a passing irritation. The fifteenth attack was the charm, and that one belonged to Valentine Smith, who was certainly living up to his odd name. When a tough gal named Friday (so help me; and Roberta didn't even own Comity names for its weekdays) put in a complaint, King (and Pinero, and Karst) discovered that she was the fourth gal our Valentine had used his little arrow on, that morning. She was just the first to complain.

Considering that the bypass effect made no distinction between woman A and woman X—and that every female in the bubble knew this rather degrading fact—Valentine must sure as Hell have had something special. I made a note to ask him whether it was teachable, once we got clear of our problem.

After all, a Survivor has to go after every available sort of fact—right?

It was Friday's complaint that finally kicked my brain into doing some work, though. Her description of the attack, in fact:

"He came at me, and there must have been ten other men in the area. *Ten.* And not one of them made a move to help me. I can take care of myself, sure—but not one of them made a move of any kind, except to get on with their work. Ten other men, and I might just as well have been alone. If you think I'm going to stand for—"

The other men, of course, were doing the most sensible thing they could think of. If they had mixed in, on any side and to any degree, the least trace of the pheromone bypass—if any happened to be in their systems, and nobody really wanted to quote odds on that—would have set them off: we might truly have had a busy Friday, so to speak, with men fighting over her, maybe calming down just enough to get in line and wait their turns . . .

It's called momentum, and it's a powerful force: ask Isaac Newton (or Sigmund Freud). Ignoring the attack was the best insurance those ten men could buy against suddenly joining it.

But explaining that to a flaming-mad Friday would have been useless. She was in no better shape to appreciate sense than I would have been, maybe ten minutes post-attack.

So none of us did explain it to her—not more than two or three times apiece.

And she went off with steam still coming out of her head, and threatening to quit, and promising all sorts of dire behavior if something wasn't done about this impossible situation, and—so on.

So I did something.

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By mid-afternoon I was alone, lying on my solitary cot in my solitary cubicle, and I kept thinking about those ten men.

Ten men. Ten little Indians. And what made them worth thinking about?

The back of my head is a good deal brighter than the front of my head. It wanted me to go on thinking about those men, so I was more than willing to oblige it.

I was even willing to try asking it questions. 1. Would they be worth thinking about if they were nine men, or eleven, or seventy-six? (The back of my head has a high signal-to-noise ratio, but I thought I heard it say Yes.) 2. Should they have been doing something other than ignoring the attack? (No, under no circumstances—which was so very positive a reply I filed it for further mulling.) 3. Did the identity of the men make any difference—or the identities of Valentine Smith, or Friday? (Of course not; the bypass made any male grab blindly for any available female. Which also seemed suddenly important.)

I think I got all the way to 22, and most of the list was too silly to record. But my head—after a while, front and back both—kept coming back to 2 and 3: something kept whispering *Any male . . . any female.*

It was three o'clock in the morning, bubble time, when those words began to mean something. I sat bolt upright in my bunk, catching myself a nasty bruise on the overhead shelving, and cursed myself for several different sorts of idiot, including two or three sorts I had never really thought of before.

Then I reached for the local phone and began buzzing for a meeting of the minds.

The three who counted: Karst, Pinero, King.

And, of course, the Man with the Answer: Gerald Knave: Idiot.

Everybody looked a trifle seedy, but no more tired than usual—after all, what with work and worry, they'd been cramming approximately twenty-five hours into every twenty-four, from the beginning.

And they babbled at me—for almost a minute. Questions, all at once, and (therefore) unintelligible.

I raised a hand. Silence came down into Pinero's office like a pure-gold blanket (we were meeting there because it was handy, and fairly large). Power, it's wonderful.

I made just two recommendations. The first was: "You've got to hire a lot more men to work as chemical engineers up here."

The reaction was predictable. I was crazy. I'd gone completely round the bend (which is easy in a small bubble). Didn't I realize that I'd be wishing on every woman in the bubble a larger mob of potential rapists to fight off? How could I even think of such a thing . . .

And on, and on. I waited it out for a bit, just to see whether anybody was going to come up with a real objection, but I didn't really doubt my answer. It was too good. And when I'd collected a bucketful of assorted querulousness and invective, I raised my hand again.

So much for the joys of power: it didn't work. I stood on a chair, put my hand up again, and said loudly: "All right. Now listen to the rest of it."

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Then, in silence, I gave them my second recommendation.

"Segregate the women. Entirely."

Somebody—Karst, I think—said: "But—" and stopped. The three of them sat and thought—probably calling themselves a few of the simpler names I'd been using on Gerald Knave: Moron, just a few hurried minutes before.

Then, because there was no stupidity in that trio, they got to work—planning their new hiring methods.

Somebody—I can't remember who, and it may not matter—once said that, if a problem looks unsolvable, you can always try turning it upside-down. It may look better that way. It may even have a solution.

I had seen and heard enough about the women in that bubble being turned upside-down; it still took me all that time to apply the technique to the bubble's problem.

And the solution was, of course, sitting around, waiting for us. Roberta had an imbalance of chemical engineers—all of 79% male?

In that case—why hire any women at all?

(For office jobs—for planning and theory—for anything that didn't put them in contact with men—sure. Anything that left them out of contact every minute of every day. But not on the line.)

Men only. The bypass effect had no meaning without female pheromones; and where there are no females, there are no female pheromones. (That took a little working-out, what with cleaning the already-tainted air, and then setting up the universe's most thorough air-conditioning plant. As long as women were in the bubble at all, pheromones would be floating round in the air; and, whether men could reach the women or not, the bypass effect would have them massively interested in women and massively uninterested in anything else—and would lead, at the very least, to endless, crippling frustrations. The psychiatric workers didn't really need the extra load. As it turned out, a few cases did surface—but not very many: taking truly teeny chemical cues out of the air is not the sort of job you can make one hundred percent effective. Separation was rigorous—Karst and King did their jobs by phone as far as all males were concerned, from Pinero down—and the air work was as good as possible—as good as several bright and dedicated engineers of both sexes, working of course on wholly separate shifts, could make it.)

Men only. We don't seem to think that way, these years; though *women only* is damned near to a standard, unquestionable piece of everybody's head. Agreeing without thought to *women only* is not anywhere close to a good idea; not being able to think, without unusual effort, in terms of *men only* is no better. I suppose all this will straighten out after a while—things do seem to, one way or another—but we have sure as Hell not got it straightened out yet.

Men only—which is, almost all of the time, a fairly lousy, unproductive, curseworthy way to think. (Just as bad, of course, as *women only*.) But, once in a while . . .

*

The bypass was stockpiled in sufficient quantities in just under two months.

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After which—neither of the armies, or navies, being segregated establishments—the Robertan civil war was over, and with startling speed.

Establishing some sort of workable social structure—and trying to figure out a way of compensating a large, rather novel class of war victims —took longer. But I understand the place is nice and peaceful now.

I haven't been back. (In fact, I never did set foot on Roberta itself.) I may, one day: the talk is that Karst is on the track of what amounts to an immunizing agent against the pheromone bypass. And I suppose the Surprise Gas that was released is long ago inoperative . . . I suppose.

All right: it certainly is a great idea: an end to warfare that amounts to playing that ancient classic, the *Lysistrata*, backwards.

A great discovery: certainly. One that will, of course, lead to the breaking-out of peace all over. No more wars . . .

But . . .

I seem to have this little voice in the back of my head lately, coming in nice and clear despite the awful signal-to-noise ratio. And when I begin thinking about the backwards *Lysistrata* and the end of war . . . the little voice says, slowly and sort of sadly:

"Friend Knave—are you *sure?*" ■

(Human Moments in Science, continued from page 145)

men's room. The other was found in the medical library of a small university in a Third World country, which performs all surgical procedures in a two thousand square mile area. Kloggeron's book may be the explanation for the 93% failure rate in this facility's medical operations.

In late 1943 a famous mathematician (who had just discovered how to solve Hill's equation) bumped into an equally famous chemist (who had just discovered a method for transmuting dirt into gold, *if* one had the solution to Hill's equation), while walking along a street in downtown Biloxi, Mississippi. Neither knew the other, however, and each continued on his separate way after grimly warning the other to watch where he was going.

It was a black day, indeed, in 1899, when, after spilling a pot of molten solder onto a fresh pile of cow dung, Thomas Edison accidentally invented daytime television. He watched it for a while and then, horrified at what he'd created, Edison destroyed all evidence of his work. He went to his grave believing that act to be his most important gift to humankind. Edison was a very great man.

In 1963, after completing a tour de force lecture to his Freshman physics class at Caltech, Nobel laureate Richard Feynman derived a result that was too big by a factor of ten. Feynman was immediately able to put things right by dividing the answer by ten. His students rose from their seats as one and gave him a thunderous ovation. This technique was later developed into the now common method used by economists and weather forecasters to explain previous predictions.

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Jay Kay Klein's biolog

It's not often one runs across a real folk hero at the beginning of his career. Kelvin Throop first appeared here back in July, 1964, having finally had it to *here* with all the pompous, arrogant, ignorant, and asinine persons in this world who intruded on him as they have on you and me. On his last working day in a job he'd held for years, something snapped and he replied freely, fully, and forcefully to a final crop of *nerds* just as thee and me would if we weren't concerned with mortgage payments, car payments, and what we owe the IRS and the friendly neighborhood bookie.

Kelvin was born in Scranton, PA, not far from the ancestral home in Throop, PA. What made this unusual was the fact that his mother was running a trapline in the Yukon at the time, and mushed over 1200 miles with a sled team so that her son could be born in the United States and grow up to become President. Well, we know that Stalin's daughter became an American citizen. Just so, Kelvin disappointed his parent and, heeding the call of the Yukon, became a landed immigrant in Canada as soon as his education was finished at the University of Northern South Dakota at Hepplewhite.

He had started out with an intense interest in sociology, but after sitting through several lectures in this subject switched gratefully to engineering. For some years he advanced steadily in the Canadian bureaucracy as a design engineer and administrator, constructing buildings in the frozen wastes of northernmost Canada. In a mark of respect, local Eskimos called him "Square Igloo Man."

In his off moments, Kelvin contributed scholarly articles to chicken and worm breeding journals. Since leaving the service of the Canadian government, he successfully held jobs under a series of aliases in the customer service department of a small engineering firm doing defense work, as the editor-in-chief of a medical journal, and as quality control engineer at an electronics company. In every case, he eventually left after succumbing to an irresistable urge to write the honest, unvarnished truth in a spate of terminal memos and letters.

After hearing a tale of woe by the then-editor during a session at a nearby bar, he broke into the *Analog* offices to answer the letters piled on the editor's desk as the editor himself would have wished to do, if he did not have to make mortagage payments, car payments, etc. Fortunately for the sanity of the publisher's legal staff, these did not get posted but did appear with names deleted in the August, 1975 issue. Since then, quotations from Kelvin Throop and his offspring have become popular items of this magazine.

Currently, he is working in the General Secretariat of the United Nations in New York City. It may be expected that Kelvin Throop will become a household and media name at any time. ●

Kelvin Throop

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the reference library

By Tom Easton

Vampire Junction, S. P. Somtow, Donning/Starblaze, $15.95, ? pp., limited edition (150 copies), $35.00.
Gantry Affairs, Thelma Nightblood. Outline Romances,* $2.95, 342 pp.
Exile on Vlahil, Ardath Mayhar, Doubleday, $11.95, 183 pp.
Ambassador of Progress, Walter Jon Williams, TOR, $2.95, 432 pp.
The ULTIMATE Dangerous Visions, Harlan Ellison, Longears,* $23.95, 985 pp.
Burning with a Vision, Robert Frazier, ed., Owlswick Press, $14.75 (hard), $8.75 (paper), xvii + 139 pp.
Handbook of Management, Kelvin Throop, Teapot Press,* $14.95, 192 pp.
Babbitt's Dilemma, Kelvin Throop, Teapot Press,* $16.95, 243 pp.

My lead this month comes courtesy of a reader who shall remain nameless, for I am not going to be entirely kind to her. She was reacting to my June column, in which I had the temerity to offer some broad ratings of SF writers. She objected that some of those I dismissed as "minor talents" gave her everything she wanted in her reading:

> ". . . characters . . . sympathetic enough and detailed enough for me to care about them; . . . motivation . . . reasonable for both males and females; . . . the characters show growth during the course of the story; . . . setting . . . at least interesting and at best highly imaginative; . . . action . . . reasonable and fast paced. If the author displays a sense of humor (not black humor) I will stand in line to buy the book."

In all truth, her list covers everything that many readers and reviewers want

*Any information as to the whereabouts of these publishers will be gratefully received.

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in a novel. It covers everything would-be writers are often urged to supply by their teachers. It covers everything many professional writers aim to achieve. And I am a grumpy curmudgeon who pans books and writers solely according to the spleen of the moment.

Those of you who have followed this column for some time know that I do enjoy stories that satisfy this list. However, I call them "mere entertainment." I usually reserve my hightest accolades for stories that satisfy one more requirement, one that is conspicuously missing from what this reader demands. She may have overlooked it. Or she may disagree that it improves the quality of a story. I suspect the latter is the case, for most publishers do seem to feel that the feature I have in mind does not help sales. At least they make no great effort to ensure its presence.

What am I talking about? If you've been paying attention, you know that I call "best" stories that display a certain thoughtfulness. I like stories that explore, work out, or demonstrate some insight into human nature or behavior, psychology, morality, religion, philosophy, or science. Good stories both entertain me and make me think. They have a point.

This point need not be so blatant as a moral, though I do not wholly agree with the editor who says, "If you want to send a message, send a telegram." But it should be there. It should be there even if most readers don't give a damn (perhaps because their brains have been softened by TV, movies, and public education). Only thoughtful fiction has any hope of surviving for more than a few years—and SF in print for 40 years does not disprove me, for even half a century is only "a few years" on any realistic time scale.

I also value more arguable features that are missing from that list. For instance, I admire a writer who tackles a new kind of story or tries novel stylistic techniques, unusual characters, or peculiar points of view, and makes them work. Such things provide precious originality in a morass of imitation, excitement in a ward of terminal boredom. And they too make me think.

Unfortunately, such marvelously shining examples of fiction at its best are rare. They are also hard to produce, and it may be very good for writers and their incomes that the market does not demand such things. Most readers seem to *like* yard goods.

As usual, this month's column covers mostly the yard goods. I will begin with the major exception: **Vampire Junction,** by S. P. Somtow. The author is really Somtow Sucharitkul. He uses the pen name to make the book more accessible to non-SF readers, feeling his true name is too identified with SF. I wish he hadn't done it, for the book comes very close to being the major work I said last June he might be able to produce.

Donning has put out the hardcover and limited editions of the book. Berkley will do the mass market paperback in 1985. The Donning cover blurb—"Meet Timmy Valentine: Rock star, teen idol, arcade master—vampire. He'll steal your heart—and have it for breakfast." —seems designed to appeal to horror fans (the puff sheet says they're going after the "mainstream" market, but maybe the two are synonymous these days). However, Steve King fans will probably hate the book, while Philip Roth fans will love it, if they ever pick it up and open it. The book is an extravagantly excessive blurring of nightmare, dream, and reality, and symbolism abounds: " 'Of course,

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you know . . . ' he looked at her, all innocence. 'You know, in this story the word "junction" seems to mean a thousand things.' "

There is a message, too, for Somtow says quite plainly that we are all vampires, sapping the vitality of others to feed our fearful images. Growing up means mastering our fears and turning to a more healthful diet, even though growing up may not be possible short of death. Here is Timmy, the vampire, speaking: ". . . he screamed at me from a thousand mirrors. 'Am I not fear itself, the substance of all men's terrors?' But he sounded like a little boy."

Lines like that can do a lot to establish a book's literary credentials, and I expect Somtow knows it. Fortunately, the book has more, including some very effective writing, both stylistically and emotionally.

The story centers around Timmy Valentine, an eternally twelve year old vampire. His memories go back to the last days of Pompeii and include encounters with Giles de Rais, the true Bluebeard, and with Nazi death camps. He is a rock star, his latest hit a tune called "Vampire Junction," from which is spun off a video game. He has two mortal attendants, the man one who had once pulled him repeatedly from piles of Nazi victims, the woman a pathologically morbid specimen who sees Timmy as a safely unalive replacement for her long-dead child. He acquires a psychiatrist (remember Charnas's *The Vampire Tapestry?*), whose ex-husband is a second-rate orchestra conductor and first-rate pyromaniac who, as a child, was blackmailed after torching his family into helping perform a human-sacrifice Black Sabbat at which appeared not the Devil, but Timmy. He becomes the quarry of the conductor's erstwhile masters, an aged Thai prince, an infirm British lord, and a decrepit witch. He finds that long-ago human sacrifice, now a vampire herself, and takes her home with him, where she proves troublesome, leaving bodies in the bushes and surrounding him with new vampires.

And so the synchronicities rumble on. The plot is delightfully complicated, remarkable rococo, and as inevitable as only great care could make it. There are no heroes, except possibly the psychiatrist, who draws out much of Timmy's past on the couch. The rest of the characters are all villains of one degree or another, all vampires, and even the psychiatrist is a vampire, at least metaphorically.

There are, of course, flaws. One is Timmy's memories of the deathcamps. He is gassed there, again and again, despite his ability to vanish from uncomfortable situations whenever he likes. He does not exercise that ability, largely, I suspect, because Somtow needed to give him that experience for the sake of his literary scheme. Another flaw is that Somtow allows too much surrealism to intrude on his otherwise realistic story-telling, giving Timmy's house extensions into a land of dream, where no rules hold. This too he does for a reason, but the surrealism did not work well for me. I feel that Somtow still needs to learn to restrain himself, to avoid his literary excesses. When he does, he will leap the little distance that remains between *Vampire Junction* and the masterpiece toward which he is moving. In the meantime, you should by no means miss this book. It is not perfect, but it is very good indeed.

Movies, novels, novelizations, the Time-Life fantasy series, comics, television—all are signs of greater and greater penetration of science fiction

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into the fantasy life of the great American populace. I find it an encouraging sign, for whatever the literary value of the materials peddled as SF, they all tend to encourage an open-mindedness toward the future. They equip people to meet tomorrow without shock, and they may even encourage a certain maturity of outlook that murder mysteries and romances do not. It's also an encouraging sign for writers, for as their thousand markets bloom, so must their incomes.

But. It's inevitable, I suppose, that as it changes to meet the masses SF must become sci-fi; and sense-of-wonder must become sheer and utter schlock. In the past, we of the hard-core faithful have seen the signs on the big and little screens. Those signs have happily been absent—or scarce—in the products of the publishing industry.

No more. Whatever I have said in any of my previous columns for 1984, my nomination for worst novel of the year now goes to **Gantry Affairs,** by Thelma Nightblood (which I hope is a pen name). It's the maiden effort for a new line of futuristic purple romances, full of pseudo-romance, pseudo-futurism, pseudo-science, and pseudo-science fiction (which we know at its *best* as sci-fi). Hero Mark Bold is an astronaut whose impending mission will rendezvous the space shuttle with a mysterious orb in low Earth orbit. His wife is the bed-hopping Florida socialite Estelle Harriman. His mistress is mission specialist Adele Romany, who speaks with a sultry Mediterranean accent and works in cut-away overalls.

The mysterious orb has been broadcasting for weeks, promising salvation to all who believe in ancient astronauts. Florida is mobbed by true believers. Mark and Adele are readying the shuttle almost single-handedly, taking time out only for torrid clutches in the gantry elevator (hence the title), on the acceleration couches, and inside the empty External Fuel Tank, which echoes resoundingly to their exertions. The President and Joint Chiefs want them to carry a nuclear bomb to the orb. The National Academy of Science wants them to shoo it away. The DAR wants them to deliver honorary membership certificates.

The shuttle launches as Estelle dallies with the Mission Control chief and the *New York Times* correspondent. Orbital insertion is a symbolic maneuver topped only when the all-female crew of the orb sends Mark back to Earth alone. Adele will leave her home planet to bring love to the universe.

There's a twist at the end there, presumably meant to make the story both liberated and liberating. But even when Mark is given a packet of cryogenically frozen alien egg cells to take home with him, that twist is not enough to save the story.

Bah!

Ardath Mayhar's latest, **Exile on Vlahil,** is too pollyannaish ever to win any prizes. For the heinous felony of opposing Earth's dictatorial government, Ila Fazieh is exiled, alone, to a world without humans. She is given the equipment to survive, for Earth wants her to establish a human foothold on one more world. Thanks to her loving father, she has a Companion, a small solar-powered computer containing the recorded persona of a long-dead librarian, who is a more interesting character than Ila herself.

The world of Ila's exile is Vlahil. It is supposedly empty of intelligence, but Ila soon finds it has natives, the winged Vla whose males and females live in separate colonies, and the Ered, who

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stimulated the evolution of the Vla to give themselves the blessings of song and who psychically keep the planet's wildlife at harmonious peace. It's a lovely picture spoiled only by its ecological silliness and, in the story, by the intrusion of reality. A human scoutship, crewed by two deliberately warped children, has crashed in the wilderness. The scouts' psychic emanations are disrupting the harmony of nature, causing predators—horrors!—to return to their natural ways. Worse yet, the scouts are shooting Ereds and beasts for food.

Something must be done! The gods speak from their home in another dimension, and Ila gets the job of civilizing the scouts. Later, she will return to Earth, bringing salvation with her.

Let us kindly say that *Exile on Vlahil* is best suited for kids. It's not for grownups.

Walter Jon Williams's **Ambassador of Progress** shows a very satisfying sense of the scale of history, the years and the hordes involved. In its world, humans long ago conquered the galaxy with faster-than-light ships that so weakened the stucture of space that the cosmos quaked and destroyed civilization. Now worlds are returning to space in slower, safer ships and reaching out to help each other up the ladder of progress. *Ambassador* is set on a world that has just received its ambassadors, a world of city states, federations, and nascent nations. The ambassadors must walk carefully, refraining from gifts or displays of technology, trying hard to do no more than stimulate new, progressive ways of thinking, such as the scientific method.

Williams works all this out very carefully and very effectively. I thoroughly enjoyed the story, and I look forward to more from his pen.

* * *

Harlan Ellison's *Dangerous Visions* anthologies have become almost mythic—Ellison is the modern Sisyphus, and *DV* the stone he rolls endlessly up the mountain. Finally, however, he may be near the end of his task. **The ULTIMATE Dangerous Visions** is now out, with stories great and small, and like its predecessors it promises new directions for SF as a field.

These new directions come only in part from the new writers. The Dean of SF is here, too, with a trenchant analysis of the art of politics. In "Black Cats" King Friday the Thirteenth wins an Oscar for leading the U.S. to a new dominance. The new direction here lies in the author's recognition that the SF audience is by and large young, and growing younger year by year.

I will not try to describe all 48 stories in *UDV*. However, I must take a moment to tell you of new writer Amanda Ybarra from Nicaragua. She is young, but her wit and bite are unsurpassed, and her long poem, "Aroint Thee, Private C," may well win both Nebula and Hugo. In it, she plays bullets against ballots to explain why Latin American politics is essentially more democratic than our own, and she *almost* convinces me.

It seems unfortunate that Ellison couldn't place *UDV* with one of the major New York publishers. Longears Publishing Co., run by Marly Wauberg in Winslop, Maine, is a new operation dedicated to anthologies (it will soon release *The SF Marriage Manual*, a collection of tales related to courtship, marriage, consummation, family life, and divorce, including Philip Dick's "Oh, to Be a Blobel!"). Wauberg is somehow able to offer lots of greenbacks for his books, but he's bound to suffer distribution problems. In addi-

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tion, he has a certain major magazine empire on his back, suing him over the resemblance of his logo to its own. I hope Wauberg will be able to convince the court of the essential difference between a cottontail rabbit and a snowshoe hare.

George Scithers sends me a nice little gem in **Burning with a Vision,** an anthology of prime SF (and a little S) poetry edited by Robert Frazier. Many of the poems are very good indeed; none are bad, though some don't suit me well. All focus on what can be done with the languages of science and science fiction, compressing ever tighter the imagery of the short story. I commend to you Diane Ackerman's "Whale Songs," Duane Ackerson's "The Starman," Ruth Berman's "Computative Oak," Michael Bishop's physically erotic "For the Lady of a Physicist," Bruce Boston's "Human Remains," Adam Cornford's "Our Sorcerers," Tom Disch's ironic "On Science Fiction," Terry Garey's hand of DNA poker, "Full House," Joe Haldeman's "Saul's Death: Two Sestinas," and more, by poets old and new.

If you have any taste for poetry, this is the anthology to get. By and large, it's the most satisfying one I've seen.

Most readers of *Analog* are surely familiar with Kelvin Throop's version of MBO—Management by Objections. He has a caustic bite to go with his bark, and when he sends a memo praising some corporate functionary for *so* reasonably gumming up the works, that functionary must feel properly flayed. At least, so Throop assumes, and he has recorded some 125 "typical" memos along with his observations on the value and use of common sense in his own **Handbook of Management.** He wants to teach others how to improve productivity and burn out deadwood in his inimitable way. The result is a gem of a book that cuts deeply into its target. No one can read it without laughing—even while recognizing that they too have earned Throopian accolades.

Will the book achieve its goals? Somehow, I doubt it. Functionaries being the peculiarly short-sighted and pea-brained beasts they are, they probably feel that Throop's "praise" pats them on their pointy little heads. I suspect Throop suspects as much himself, for in his first novel he displays a marvelously soaring blood pressure. In a thoroughly apoplectic tone, **Babbitt's Dilemma** attributes the fall of Western civilization to well-meaning idiocy. A decommissioned nuclear power plant is "reformatted" as a sewage treatment plant, and the resulting processed sewage is wisely trucked to farmland as fertilizer. This makes sense to the ecologically enlightened bureaucrats in charge, but they are not quite enlightened enough. Hero Kevin Babbitt blows the whistle, telling the public their food supply is now contaminated. Is there a solution? Of course there is. Even as Babbitt and his three lovers lose their hair fighting his firing, the bureaucrats decide to use the contaminated food to feed the nation's nursing homes, whose residents have too little time left to worry about cancer and mutations and too little hair to worry about going bald. Unfortunately, this puts the contamination into other sewage systems and other farms.

Throop clearly feels for civilization as a whole, but he equally clearly has little hope for it. Cynically, he puts the dilemma as "To glow or not to glow," with its enticing double meaning. Buy both his books (if you can find them). With luck, you may see the answer he cannot and so save the world. ■

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brass tacks

Dear Sir:

I would like to take this opportunity to register an outraged protest against your repeated use of Scots/English names for human villains. We Scots and English have taken the blame for everything entirely too long and we are getting sick and tired of it.

I have recorded the names of the villains, incompetents, and politicians your stories have depicted over the past ten years. The results are absolutely damning. Over the period extending from January, 1974 to January, 1984, your stories have contained:

69% Scots/English
47% Non-human aliens
17% Sentient Terrestrial animals
14% Russian
11% German
10% Non-sentient Terrestrial animals
8% Scandanavian
6% Non-specified Asiatic
5% Machine brains & robots
18% Other Human Ethnic groups & societies

Now I know your writers are all prejudiced against everyone of Scots or English origins, but THIS is getting ridiculous! Admittedly there may have been occasional villainous individuals bearing names of Scots or English extraction (Though I have good reason to believe the majority of these are people who had changed their names to conceal their true roots), but they are few and far between . . . probably numbering no more than one or two per century . . . if that many.

I trust that in the future you will see to it that your writers cease their endless innuendos and dastardly libels against those of us who proudly boast of our Socts/English forebearers.

HEPPLETHWAITE MORTIMER
CHESTERSHIRE

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Executive Director
Anglo/Scots Defence League
English Corners, MA

Good grief!

Dear Mr. Throop:

I'm living in Mexico; have been some time now.

The climate is pleasant all year round, if a bit torrid in summer. Prices since the recent devaluation of the Peso have been very attractive; tequila's 10¢ a shot, *Cerveza Carta Blanca*'s 25¢ a bottle . . . you-know-what's only $30 a pound (if you know the right people)—and the *señoritas* are *very* friendly!

So tell that jerk Berlitz and all those yahoos from the Bermuda Triangle Ward of the local looney bin to lay off my case, will you? I have no wish to be bothered—and dodging all these damned tourists who come down here to investigate my 'mysterious disappearance' is getting to be a pain in the ass!

I'm having the time of my life, and I expect to keep doing so for a good long while to come.

AMBROSE BIERCE

Somewhere in Mexico

Dear Kelvin:

Transatlantic tunnels (hurrah!) notwithstanding, no "supertrain" for coast-to-coast underground travel will get my vote until somebody guarentees it will run more smoothly than our current state-of-the-art systems like, say, the New York subway. Will engine troubles be nonexistent, or must we prepare ourselves for an occasional stall some fourteen miles east of North Platte, Nebraska? (Have you ever tried to do a newspaper crossword puzzle by auxiliary light? For four hours? Just how close could the nearest terminal to North Platte *be*?)

And imagine crossing the country by train without a VistaCruiser car. You might as well take a night flight. Monorails, maybe; subterranean choo-choos, no.

ED NOGO

Brooklyn, NY

Dear Mr. Throop:

Again this month I tried to peel the address label off my *Analog* and only succeeded in ripping up a strip of the cover illustration. *Please* investigate a new supplier of glue. There are, I believe, more than 400 adhesive compounds commercially available.

—I've just read the cover story, and it's back to this letter. On evaluation it seems appropriate to have defaced my issue. Turns out the alien in the story looks nothing like the one your cover represents; the fictional character has two navels, not just one as shown on the front cover. Accuracy in artwork as well as exacting science fiction would be appreciated.

E. L. PICKTWADDLE

Los Angeles, CA

Dear Mr. Throop:

Once again your authors managed to fill several of my hours with thought-provoking reading matter. I'd like to comment on just a few of the pieces in December's issue:

Joseph H. Delaney's cover story, "The Attorney Who Came In From the Cold," was barb-tongued and sharp-eyed as usual. Lawyering seems to be a fine proving ground for a writer concerned with creating personalities. Some of Mr. Delaney's villains disturb me because they're just as "real"—full of good reasoning and rationalization for their behavior—as his good guys. But

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tell him to keep it up. If those guys are out there, I want to recognize 'em when I meet 'em.

Timothy Zahn contributed still another great story involving telepathy. I've decided Mr. Zahn has secretly already invented the thought-picker from "What's On Your Mind?" Else where does he get all his ideas? Stay away from Hollywood screenwriters, please, Mr. Zahn!

Finally, "Wool Over Their Eyes" was terrific. I have to admit I'd never given a moment's thought to the implications of sheep's acquiring a group mind. This yarn really had me hooked. I'd like to see more from B.B. Black.

CAROLYN CHADWELL

Hollywood, CA

So would we, and we've taken the first step by buying Ms. Black's newest story. It's a sequel to "Wool" she calls "Lamb Chops."

REPLIES TO SOME LETTERS WE DIDN'T HAVE ROOM TO PRINT

Dear Mr. Bonaparte:

I'm really sorry I haven't found time for detailed replies to more of your letters, but there are two problems. One is that you're sending me more wordage than most of my other correspondents put together, and occasionally I have to take time to look at a manuscript or two. The other is that, while I would never question that your ideas are profoundly important and urgently needed by mankind, you couch them in such language that I can seldom figure out what they are. Dialog is more fun when both parties share some idea of what they're talking about. I can hardly wait to learn how you plan to save the world, but I'm afraid you'll have to explain it in a language I understand. May I suggest English?

Eagerly,
K.T.

Dear Mr. Whazis:

From the sound of it, the things you've done with your word processor are Really Neat, and we appreciate your offer to do the same for ours. But I'm afraid a round-trip ticket from Calcutta and a month's lodging here are a bit more than my boss will put out on speculation.

Gratefully but penuriously,
K.T.

Dear Mr. Garbanzo:

Thank you for the detailed analysis of our last eleven issues; such feedback is truly invaluable. Just out of curiosity, though, if you think everything we're doing is so rotten, why are you reading us, anyway?

Quizzically,
K.T.

Dear Ms. Fosdick:

I'm terribly sorry the paper clip fell off your manuscript, and I admit it may have happened in this office, but I'm sure nobody here stole it. We even know places where you can buy not just one, but several new ones for less than the cost of writing and mailing such an accusation.

Incidentally, when you send a manuscript, please make sure all the pages are right side up. Otherwise some simple-minded editor might suspect you of that tiresome amateur's trick of sticking a page in wrong to see how far he read.

Simply,
K.T. ■

● We anarchists must stick together.

Kelvin Throop

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a calendar of analog upcoming events

24-25 December
POLARCON MCMLXXXIV (High Arctic SF conference) at the Workshop. Writer Guest of Honor—Pole Anderson, Editor Guest of Honor—Frederik Pole, Fan Guest of Honor—Rudolph, TM—Wilson "Bob" Tucker. Registration—limited to good little boys and girls.

29-31 February 1985
WEAPONCON IV—no one admitted without a weapon. Affairs of honor will be settled at dawn. First aid classes will follow (depending upon the competency of the participants). Nuclear weapons not allowed, TM—Wilson "Bob" Tucker.

29-31 March 1985
ROLE-CON (Fantasy role playing conference) at "The Castle," Strelsau. Guess who the real guest of honor is, TM—Wilson "Bob" Tucker. Info: Role-Con, % U.S. Consul General, Via Esperanza, Strelsau, Ruritania.

31 March-2 April 1985
CONCON (SF conference) at Walla Walla, WA. Being held on beautiful extended campus approximately 3-½ miles NW of town. Maximum security facilities can accommodate 1500 guests or 6000 SF fans. Free meals and housing for all fans. TM—Wilson "Bob" Tucker.

31 April-4 May 1985
INSTRUMENTALITY (academic SF conference focusing on the works of Cordwainer Smith) at the Hostel of the Singing Birds, Miami, Fla. Guest of Honor—Casher O'Neill, Fan Guest of Honor—Rod McBan, TM—Wilson "Bob" Tucker. Info: Department of Semiotics and Computer Science, Meeya Mefla University, Florida.

4 July 1985
CYPHERCON (Computer security conference) at **CENSORED.** Have your corporate security office forward your clearance and need to know to the proper address for conference information. TM—Wilson "Bob" Tucker. Info: % The Company, Washington, DC.

12-14 July 1985
DAKOTACON III (alternate World SF convention) at Highmore, S.D. The usual antics of the SF community's annual get-together plus poetry reading (compulsory), seven-course banquet (plain, pepperoni, anchovy, onion, mushroom, sausage, extra cheese). Guest of Honor—W. Tucker, Fan Guest of Honor—B. Tucker, TM—Wilson "Bob" Tucker. Tents and slit trenches will be supplied by the South Dakota National Guard. Sealed bids are now being accepted for the SF Achievement Awards (Hugos) and the John W. Campbell Award for Best New Writer. Info: Dakotacon III, Highmore, SD

4-17 August 1985
SPACECON 85 (Space industrialization conference) at Astromodul, Russian L-5 colony. The usual talks, panels, etc. Registration—R5000 (includes bread); U.S. citizens not eligible. Principal telespeaker—Wilson "Bob" Tucker.

20 July 1989
First Annual Lunar Rover Race (amateur driver class) at Tycho Crater, Luna. Unusual moonscape and scenery, extremely hazardous. BYOO$_2$ Registration—$99 (transportation not included). Awards will be presented by Wilson "Bob" Tucker.

—Anthony Lewis

Items for the Calendar should be sent to Wilson "Bob" Tucker, unless you want to have them published.

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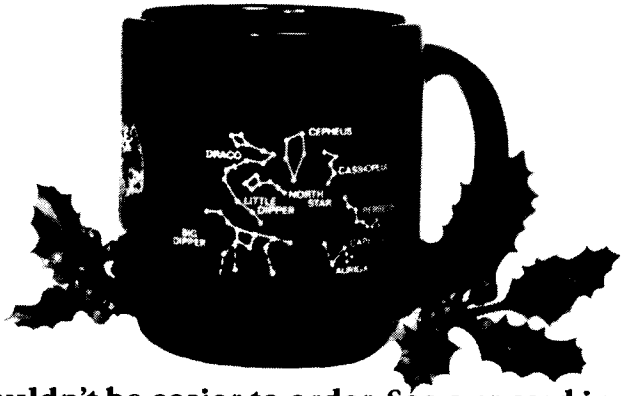

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